

The Impact of Education on the Use of Breast Self-Examination
Among Canadian Women

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Abstract

The purpose of this study was to examine the relationship between the level of education that Canadian women have and their use of breast self-examination (BSE). The secondary objective of this study was to do some exploratory research to measure how the demographic characteristics of these women, and the behaviours that they chose to participate in, might be associated to their use of BSE. This exploratory research was done to gain a better understanding of what kinds of lifestyle and behavioural factors are associated with the use of BSE, and how these factors impact on the relationship that education has on women's use of BSE.

The data for the women in the sample were taken from the 1990 Population Health Survey, conducted by Statistics Canada. This survey included questions related to both the demographic characteristics of this population, and their behavioural choices in regards to various healthy lifestyle factors.

Education was found to be significantly related to the use of BSE. Many of the demographic variables (age, income, marital status and language) were also found to be significantly related to the use of BSE. The behavioural variables (tobacco use, alcohol use) did not reflect such a strong relationship.

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CHAPTER ONE: INTRODUCTION

Overview

This is a study of how women's level of education is related to their use or non-use of breast self-examination (BSE).

Breast cancer is a devastating disease affecting 1 in 9 women, and killing 1 in 25 (Breast Cancer in Canada, 1999). Because there is no known cause for this disease, efforts aimed at prevention have had limited success. Thus the best course of action to decrease the rates of breast cancer is through early detection.

BSE is one method of early detection. It can be performed by all women, is cost-free and can be done at home. Increasing the number of women engaging in early detection practices, as well as increasing the accuracy of the exams performed are important to decrease breast cancer mortality rates. To do this, it is important to have a better understanding of the factors associated with BSE use. Research shows that healthy lifestyle behaviours like early detection practices are performed more frequently by those people who have obtained higher levels of education (Ross & Wu, 1995). The association between education and the use of BSE practices will be examined here in this study.

Background of the Problem

Early detection of breast cancer can reduce the extent of and reduce the amount of treatment necessary, improving women's chances of survival (Strickland et al., 1997). Methods of early detection include mammography, clinical breast examinations (CBE), and breast self-examinations (BSE). BSE is cheaper than mammography or CBE for the cost of the examination;

it is the most accessible method, and has the least discomfort involved (Clarke & Savage, 1999) of the three methods. Its availability and usefulness is not limited to some age groups, as mammography and CBE often are (O'Connor, 1993). BSE is an effective method of early detection, and a better understanding of the characteristics of the people who use it is needed.

There has been some controversy in previous studies as to the degree that education influences women's use of BSE. According to the 1990 Health Promotion Survey Technical Report, there was no significant association between BSE use and level of education (O'Connor, 1993). In fact, women who reported having the highest levels (completed post secondary) of education were found to have a lower proportion of respondents claiming to perform monthly BSE than the women who had just some post secondary education. However, inconsistent measures used for BSE use have led to inconclusive findings.

Although most studies use a frequency measure of BSE, strict frequency guidelines are not as important a measure as "ever" performing BSE (Overmoyer, 1999; Sirovich & Sox, 1999). If BSE is performed occasionally, a woman is going to find any abnormalities that develop in her breast sooner than if she did not use any form of screening (Baines, Wall, Risch, Kuin, & Fan, 1986; Strickland et al., 1997).

Women who do not receive mammography screening are the ones who seem to need it the most. They are less educated and tend to under-utilize available health care services, and have higher rates of mortality in general (Cairney & Arnold, 1998; Williams, 1990). If education does have an impact on the use of BSE, it is important to try to understand the factors involved.

Purpose of the Study

The purpose of this study is to examine the relationship between levels of educational attainment and the use, or the non-use of BSE as a healthy screening practice in Canadian women. It is hoped that by examining this relationship, a better understanding of who needs to be targeted for BSE and breast screening adoption practices.

Rationale

Breast cancer killed approximately 5,400 Canadian women in 1999 (Breast Cancer in Canada, 1999). It is the second leading cause of death for women of all ages (Baquet & Commiskey, 1990; Carolin & Pass, 1999). Without a known cause, prevention cannot be effective. Thus early detection is critical to decrease breast cancer deaths. With such great numbers of women being affected, answers are needed on how to decrease morbidity rates. The first step toward decreasing these rates is to gain a better understanding of possible solutions. The adoption of BSE is an essential part of that first step.

Most studies on breast screening have focussed on mammography use, or BSE use combined with other screening methods (Maxwell, Kozak, Desjardins-Denault & Parboosingh, 1997). Research that has examined BSE use has only measured frequency (Baines et al., 1986; Clarke & Savage, 1999; Strickland et al., 1997; Vietri, Poskitt & Slaninka, 1999), or has been inconclusive because measures of BSE have not been standardized (Overmoyer, 1999; Sirovich & Sox, 1999). For these reasons, it has been difficult to compare the results to reach conclusions as to the effectiveness of BSE.

Importance of the Study

A study to learn more about the characteristics of those who use BSE is important to understand how to help more women adopt BSE. This study investigates how much impact education has on BSE use. The aim of this study is to determine what factors need to be addressed in order to reach women to change their behaviours in a way that will be effective and lasting.

The information from this study could be useful to many groups of people. Anyone involved in health promotion programming, or anyone who deals with patients or clients in a medical profession specific to breast health might be interested in the results of this study. The results could contribute to the body of knowledge of breast cancer, and women's screening practices. More importantly, the results could have an impact on the plans for future breast health initiatives.

Scope and Limitations

This study does not examine the use of mammography or clinical breast examination to understand the adoption of those screening practices. There have already been a great number of studies about the use of mammography. The use of CBE would be too considerable of an undertaking along with the use of BSE for this research paper. Some of the questions that may arise in the course of data analysis will not be able to be explored because the research questions that are being dealt with are going to be limited by the measures provided in the survey.

CHAPTER TWO: LITERATURE REVIEW

Breast Cancer

Overview

This literature review will address two very distinct areas: 1) breast self-examination and 2) education's impact on health behaviours. These two areas will be brought together in an examination of how level of education predicts health behaviours, specifically breast self-examinations.

Breast Cancer Prevalence

Breast Cancer Incidence and Mortality Rates

During a lifetime, 1 in 9 women is expected to develop breast cancer, and 1 in 25 women are expected to die from this disease (Breast Cancer in Canada, 1999). Breast cancer is the leading cause of death among women ages 40 to 55, and is second only to lung cancer for cancer-related deaths for women of all ages (Baquet & Commiskey, 1990; Carolin & Pass, 1999). According to recent research (Canadian Cancer Statistics, 1999) Canada had an estimated 18,700 new cases of breast cancer, and Ontario had the most of all of the provinces, with approximately 7,400 new cases. Breast cancer led to 5,400 deaths in Canada in 1999, and 2,100 of those were in Ontario. Breast cancer deaths accounted for 97,000 potential years of life lost. Looking only at the 20 to 29 age group, there were approximately 85 new breast cancer cases in

Canada, and 10 deaths in 1999. The numbers increase in each age bracket up to 2,200 new cases, with 1,400 deaths in the 80 to 89 age group.

Reducing Breast Cancer Morbidity and Mortality Rates

The incidence of breast cancer increases 2% annually (Vietri, Poskitt & Slaninka, 1997), but the mortality rates have remained unchanged since the 1930s (Strickland et al., 1997). The stability of mortality rates is attributable to improvements in the effectiveness of early detection and treatment programs (Breast Cancer in Canada, 1999; Canadian Cancer Statistics, 1999). Thus, early detection and treatment is of utmost importance to women's health.

Controlling the amount of treatment needed for breast cancer in the general population has been approached from two perspectives: prevention, and early detection. The appropriateness and effectiveness of each of these methods is discussed below.

Prevention

Risk Factors for Developing Breast Cancer

Risk factors for breast cancer include: being female, advancing age, a family history of breast cancer, a personal history of breast cancer, high levels of radiation exposure to the chest, and a history of certain types of breast disease (Breast Cancer in Canada 1999). Demographic variables most often associated with increased risk for developing breast cancer are: living in an urban area, having a high socio-economic status, and being born in North America or Northern

Europe. Other weaker, but well-established risk factors for breast cancer are obesity in postmenopausal women, various hormonal factors, such as age of first menses (first menstrual period), and the age at birth of first child (Breast Cancer in Canada, 1999). Researchers are still debating about the risk that one's behaviour has on one's likelihood of developing cancer. Unhealthy lifestyle behaviour choices, such as being sedentary, eating a high fat diet, smoking, and drinking to excess, have been linked with an increased risk for developing cancer, but the association of these behaviours with breast cancer are not yet clear.

Lifestyle and Breast Cancer

There is much controversy among researchers about whether lifestyle behaviours, such as, being sedentary, smoking cigarettes and consuming too much alcohol or dietary fat are risk factors for breast cancer. However, these behaviours, if they are related to an increased risk, only have a small impact on whether a woman will develop breast cancer in her lifetime (Sirovich & Sox, 1999).

Physical Activity. Women who exercise regularly are thought to have a modestly lowered incidence of breast cancer and increased immune function allowing white blood cells to manage malignant cells and regular bacteria (Epstein & Steinman, 1997; Greenberg & Dintiman, 1997; Rockhill et al., 1999). An increase in physical activity is also thought to decrease the lifetime exposure a woman has to ovarian hormones. High levels of physical activity have been hypothesized to delay menarche; decrease the total number of menstrual cycles; increase the production of estrogen-binding proteins; affect body size and fat stores; and promote early

menopause (Epstein & Steinman, 1997; Greenberg & Dinitman, 1997; Kradjian, 1994; Rockhill, et al., 1999).

Among younger women, researchers found an association between physical activity and breast cancer rates, reporting that physical activity in women's recent past has an effect on their breast cancer risk (Rockhill et al., 1999). They raise an interesting point, that the level of activity necessary to change a woman's menstrual cycles would have to be equivalent to that of a trained athlete, which would not occur in the general population. They also point out that vigorous activity does not always reflect a decrease in breast cancer rates (Fraser & Shavlik, 1997). This may be related to over-exertion actually decreasing one's immunity, rather than giving it a boost (Kradjian, 1994).

Future epidemiology studies need to explore ways to improve the assessment of lifetime physical activity from all types of activity, to obtain a more meaningful and accurate measure of lifetime reports of activity (Rockhill et al., 1999).

Cigarette smoking. Smoking is attributed to many unhealthy consequences, such as coronary heart disease, stroke, atherosclerosis, and aneurysms; lung and other cancers; emphysema, bronchitis, pneumonia, and other respiratory infections; liver disease; and burns (Ross & Wu, 1995). Cigarette smoking has also been associated with an increased risk for breast cancer with the assumption that the toxins in cigarette smoke to which a person is exposed, affect the body's production and metabolism of estrogen (Kradjian, 1994; Simone, 1994). Finally, combining alcohol and tobacco has been reported to lead to a dramatic increase in risk of developing breast cancer, compared to the use of either of these substances alone (Epstein & Steinman, 1997, McGinn & Haylock, 1998).

Mouchawar, Byers, Cutter, Dignan, and Michael (1999) claim smoking is not a risk factor for breast cancer, but some researchers (Stoll, 1999) still feel that it could be associated. It could be that there are confounding variables not accounted for. With such contradicting findings, a clear association cannot be assumed.

Alcohol consumption. In a meta-analysis of more than 50 epidemiological studies of alcohol consumption and breast cancer, the researcher concluded that an association is still not clear (Smith-Warner et al., 1998). In one study, there was a 30 to 40% increased incidence of breast cancer among women who drank at least 30 grams of alcohol (equivalent to one beer, one shot of liquor or one glass of wine) a day. In the majority of the literature reviewed, alcohol consumption was positively associated with an increased risk of breast cancer (Aiken, Fenaughty,

West, Johnson, & Lockett, 1995; Alberg, Lam, & Helzlsouer, 1999; Ballagh, 1999; Breast Cancer in Canada, 1999; Mouchawar et al., 1999; Primic-Zakelj, 1999; Stoll, 1999). Only one study contradicted this claim (Tavani et al., 1999). According to Epstein and Steinman (1997), a single incident of binge-drinking may be all that is needed to lower the immune system and trigger tumour cells to spread and develop into a cancerous tumour.

Ontario public health units recommend that women drink in moderation, and not exceed more than two drinks per day, or more than nine drinks per week. Based on this recommendation, the consumption of more than nine drinks per week was considered unhealthy. While moderate alcohol consumption has been associated with better health by decreasing cardiovascular disease, stroke and hypertension, heavy drinking and abstinence are associated with higher mortality and morbidity rates (Ross & Wu, 1995). People who are less educated, living in poverty, and holding low-level, high-risk jobs, tend to fit into one of these two extreme alcohol consumption categories. Thus, the link between alcohol and breast cancer may be confounded with education, income or occupation.

Diet. Women who consistently eat diets high in fatty foods are thought to be at a greater risk for developing breast cancer (Greenberg & Dintiman, 1997). Higher dietary fat is linked with higher estrogen levels (Kradjian, 1994). Additionally, a high-fat diet suppresses the immune system, inhibiting white blood cell activity from eliminating malignant and bacterial cells (Kradjian, 1994). Finally, saturated fats and other animal products are often contaminated with carcinogens and estrogenic chemicals (Epstein & Steinman, 1997).

Dietary fibre is also linked to breast cancer risk, such that women who eat high-fibre diets are thought to be less likely to develop breast cancer. There are a number of reasons for this.

First, fibre dilutes the carcinogens as they pass through the digestive system, increasing the speed of excretion of these carcinogens and hormones from the body as waste (Ferguson & Harris, 1999). Second, fibre contributes to increased feelings of satiety, discouraging people from eating high-fat foods (Ferguson & Harris, 1999; Simone, 1994). Third, whole grains contain antioxidants and other necessary components that can act to neutralise free radicals and control hormone levels. Fourth, the consumption of beta-carotene, a component of high-fibre foods, increases the body's immune functioning (Kradjian, 1994).

Obesity. Obesity is an independent risk factor for breast cancer in women after menopause (Simone, 1995; Velentgas & Daling, 1994). There is an inverse relationship between breast cancer risk and body mass index for premenopausal women (Tavani et al., 1999). The effects of body size may also differ depending on the distribution of fat on her body, and her body size at different times throughout her life.

Family History, Hormones and Breast Cancer

The greatest risk factors associated with the development of breast cancer are not modifiable. These risk factors include being a woman, aging and the presence of hormones. Family history and genetics also play a role. Because these factors are the greatest determinants of the development of breast cancer, early detection is imperative.

Age. More than 85% of the cases of breast cancer occur in women over the age of 45 (Kradjian, 1994), and breast cancer is the most common cancer found in women over the age of 65. The rates of breast cancer in elderly women is double that of younger women, partly due to the exposure older women have to both non-modifiable and external risks factors over their

lifetime (Rebbeck, 1999; Simone, 1995). The accumulated effects of both internal and external carcinogens take time to develop to a level that is detectable (Patterson, 1994).

Hormones. Breast cancer is a hormone-dependent disease (Breast Cancer in Canada, 1999; Kradjian, 1994; Overmoyer, 1999). An overabundance of or insufficient level of hormones causes cells to function improperly, leading to an increased chance of random genetic error in the reproductive organs, which could eventually lead to breast cancer (Simone, 1994; Strassman, 1999). Estrogen-related risk factors for breast cancer include: being over 30 years old for a first pregnancy (Fraser & Shavlik, 1997; Kradjian, 1994; Simone, 1995); nulliparity (having no children) (Aiken et al., 1995; Marcus et al., 1999; Mouchawar et al., 1999; Simone, 1995); and never lactating (Velentgas & Daling, 1994). Early menarche (before the age of 15) and late menopause (after the age of 55), also leads to a greater estrogen-related risk (Marcus et al., 1999; Mouchawar et al., 1999; Tavani et al., 1999). The greater number of menstrual cycles experienced, the greater the risk for breast cancer, as exposure to estrogen increases over the lifetime.

Breast feeding for 6 to 12 months decreases women's risk for breast cancer as it increases the span of time between a woman's periods (Aiken et al., 1995; Kradjian, 1994; Marcus et al., 1999; Simone, 1995). A full term pregnancy lessens a woman's risk for breast cancer, as does amenorrhoea. Both cause a break from her menstrual cycling, which will lower her exposure to estrogen (Strassmann, 1999). Furthermore, with conception, hormone levels are altered, causing a change in the terminal end buds of the breast cells. This removes proliferating cells, permanently altering the construction of the breast, and lessening the effect of environmental carcinogens (Love, 1994; Simone, 1995).

The use of oral contraceptives and the effects of estrogen replacement therapy on breast cancer risk remains controversial (Breast Cancer in Canada, 1999; Fraser & Shavlik, 1997). Some researchers (Aiken et al., 1995) feel very strongly they are risk factors, while others (Tavani, et al., 1999) feel strongly that they are not.

Family history. According to some researchers (e.g. Aiken et al., 1995) the greatest risk factors for breast cancer are not lifestyle related, but rather, are related to family history and exposure to endogenous estrogen. In more than a quarter of all incidences of breast cancer, a first or second degree relative has also experienced an incidence of breast cancer (Smith-Warner, et al., 1999). A woman is considered at high genetic risk if her family history seems to reflect an autosomal dominant trend of breast cancer with multiple relatives having had breast cancer, having an early age of diagnosis, and in some families having had ovarian cancer (Hartman et al., 1999).

Family-related risk is not just genetic, but also attributable to the adoption of unhealthy behaviours shared by family members, such as a sedentary lifestyle, high-fat diet and smoking (Kradjian, 1994). It has been estimated that the influence a family has over a person's behaviour is five times more powerful in regards to risky behaviours, over genetic mutations for breast cancer (Kradjian, 1994). The exception to this is the BRCA1 gene that contributes to a very small proportion of people who develop breast cancer due to a genetic inheritance (Kradjian, 1994).

Effectiveness of Prevention

Age, family history of breast cancer, and exposure to hormones have been identified as

risk factors having the strongest relationship with developing breast cancer. There is also a body of literature linking breast cancer with obesity (Velentgas & Daling, 1994), physical inactivity (Kradjian, 1994), tobacco use (Epstein & Steinman, 1997), alcohol use (Epstein & Steinman, 1997), diet (Kradjian, 1994), and the use of oral contraceptives (Simone, 1995). For example, in a study of 121,700 women, researchers found that those women who developed breast cancer had not been physically active and had consumed diets high in fat, relative to those who did not develop breast cancer (Rockhill et al., 1999). However, recent research into the impact of behavioural choices on women's risk for breast cancer has been inconsistent (Smith-Warner et al., 1999; Stoll, 1999). Thus, although research has established the non-modifiable risk factors for breast cancer, such as being a woman, increasing age, and higher levels of estrogen, there still is no conclusive evidence showing that modifiable behavioural choices, such as smoking, exercise, or diet have a significant impact a woman's individual risk. Because research has not been able to pinpoint a cause for breast cancer, the effectiveness of preventative measures is unknown. Researchers and health professionals continue to recommend healthy lifestyle choices, such as eating healthy and being physically active, to decrease the risks of disease, but warn that healthy lifestyle choices will not necessarily guarantee reduced risk of cancer (Kradjian, 1994).

While efforts aimed at preventing breast cancer through lifestyle modification should not be abandoned, it appears that early detection through screening currently offers the greatest promise in terms of decreasing the rates of breast cancer mortality and morbidity. Therefore, it is important to have a clearer understanding of early cancer detection methods.

Early Detection and Screening

Because treatment options for breast cancer are improving, early detection is a key strategy for decreasing breast cancer mortality rates. The sooner cancer is detected, the sooner treatment can begin. The earlier treatment is administered, the better the prognosis will be, as treatment becomes less effective on more developed cancerous growths. Accordingly, women have much better chances of survival when the cancer is detected before it has had a chance to metastasize. Early diagnosis does lead to an improved probability of survival, by decreasing the number of potential years of life lost (Canadian Statistics, 1999), and by decreasing mortality rates (Overmoyer, 1999).

Breast cancer is a “screen-worthy” disease, because it fits the criteria of being not very rare, serious, treatable, and having a developmental period where it can potentially be detected and treated before becoming fatal (Sirovich & Sox, 1999). Screening increases the chances that a growth will be found early enough, so treatment can be implemented to decrease the morbidity and mortality of women.

By definition, screening practices are meant for people without symptoms of the particular condition (Sirovich & Sox, 1999). The effectiveness of screening is therefore difficult to assess because it is difficult to measure the improvements of health in an already healthy population. Given that breast cancer affects women from all age, economic, ethnic, racial and environmental groups, it cannot be accurately predicted which women in the population will develop breast cancer. All women should be screened regularly, with the assumption that they are healthy.

Effectiveness of Early Detection

There are several methods of early detection for breast cancer. They include mammography, clinical breast examinations and breast self-examinations. Below mammography and BSE are considered with the aim of demonstrating the value of BSE. In particular, while acknowledging the effectiveness of mammography, this section discusses issues such as availability, accessibility, and effectiveness of mammography and BSE.

Mammography

Description. The most widely used form of early detection in Canada is mammography. It is an x-ray technique to detect breast tumours in the early stages before they have developed to a size that is detectable by sight or feel. In Canada, it is a fully-insured service, but is only offered to women bi-annually who are between the ages of 50 and 69 (O'Connor, 1993).

Effectiveness of mammography. Mammography is thought to be the most useful screening procedure to detect very early abnormal growth in breast tissue. This early detection method is thought to be more likely to lead to an earlier diagnosis and earlier treatment than breast self-examinations (BSE) or clinical breast examinations (CBE) because mammography equipment can usually detect neoplasms sooner while it is much smaller than could be detected by human touch (Maxwell, Kozak, Desjardins-Denault & Parboosingh, 1997). In fact, trials have estimated that women over 50 who receive regular mammograms, alone, or in combination with CBE reduce their mortality by 25 to 30% (Overmoyer, 1999; Primic-Zakelj, 1999). Mammography has been an effective method of early detection because the disease is more often

detected during the pre-clinical phase, prior to the outward expression of physical symptoms, so that treatment can be more effective.

Limitations of mammography. Although mammography is thought to be the ideal method for early detection of breast cancer, not all women are able or eligible to obtain a mammography. For example, Maxwell et al. (1997) found that women in the youngest age groups (under 40) and oldest age groups (over 70), and those in the lowest income and education groups, under-utilize mammography screening. The women in the youngest and oldest age groups are not encouraged to have mammograms unless their physician feels that they have a high risk of developing breast cancer. For women who do not receive mammography screening regularly or at all, and for women who have very dense breast tissue, it will not be very useful to detect breast cancer. Breast self-examination and clinical breast examination may be especially important in these populations to detect any unusual growths. If women cannot use mammography for any reason, it is imperative that they use an alternative method to ensure they are healthy. If self-screening is not practiced, a lump could have fatal consequences even once it has been detected. In cases like this, some use of BSE is better than none.

Breast Self-Examination

Description. Breast self-examination is a method of early detection used to identify breast tumors, or any unusual growths that develop. It can be performed by women of all ages, in the privacy of their own home, and the procedure is cost-free. Health professionals suggest that women perform the exams following their menstrual cycle, and then monthly following menopause (Ministry of Health Ontario, 1990).

Effectiveness of BSE. BSE is promoted by health professionals (Baines, Wall, Risch, Kuin, & Fan, 1986) and the Ontario Ministry of Health (1990) as an effective screening method. Like mammography, BSE has been found to improve early detection rates, and reduce mortality rates (Clarke & Savage, 1999; Smith et al., 1998; Strickland et al., 1997). Women who performed BSE were 50% less likely to die from breast cancer (Strickland et al., 1997) and had a survival advantage of approximately 5 years from the time of diagnosis, over women who did not use BSE (Clark & Savage, 1999; Vietri, Poskitt, & Slaninka, 1997). Sirovich and Sox (1999) reported a reduced risk of breast cancer deaths among women who performed thorough BSE exams compared to those women who did not perform BSE, or who performed less thorough exams.

Limitations of BSE. The degree of efficacy of BSE is still not clear, but the research reflects that there are fewer breast cancer related deaths among BSE performers over non-performers (Baines et al., Wall, Risch, Kuin, & Fan, 1986; Strickland et al., 1997). The effectiveness of BSE depends on the quality of the exam performed (Clarke & Savage, 1999). BSE training by a health professional improves women's skills, their frequency of performing the procedure, and their self-efficacy to do so (Clarke & Savage, 1999; Lauver, Kane, Bodden, McNeel & Smith, 1999) but many women do not receive this training. The use of breast models during the training greatly increases women's proficiency and efficacy of performing BSE (Clarke & Savage, 1999). BSE training and reminders are expected to lead to greater compliance to maintain BSE practices (Vietri et al., 1997) but not enough women are being reached.

Conclusion

Mammography versus BSE. Although mammography is generally considered the best tool for identifying cancerous growths in breast tissue, it is not effective for all segments of the population. For example, younger women's breast tissue is usually too dense to reveal any abnormal growths in a mammogram. Additionally, women may have difficulty accessing mammography. Adolescents and young women are not usually encouraged to practice mammography because their risk of breast cancer is not high (Sirovich & Sox, 1999), and they are urged to avoid unnecessary radiation exposure. Despite the unavailability of mammography among the younger segment of the population, it is important to screen young women (under fifty years of age) because breast cancer is more aggressive as higher estrogen levels speed the cancerous development (Overmoyer, 1999). BSE could be especially efficacious in women who are too young to receive mammography and so BSE could therefore be a beneficial method of early detection screening for this age group.

BSE may also be ideal for women who are 40 to 49, as their risk for developing breast cancer increases over the years, but they are too young to receive the generally prescribed mammography screening which starts at age 50 (Ministry of Health Ontario, 1990). For women younger than 50, mammography is not an option unless they are at high risk, or their physicians suspect an unusual growth.

Additionally, research suggests that women with less education, women of minority cultures, women who have lower SES levels, and those from older age groups (70 years and over) are among those most likely to be at increased risk, but least likely to access mammography

(Maxwell et al., 1997). Women with a lower educational and socio-economic background receive fewer mammography exams and screening tests than individuals with higher education and higher economic status (Breast Cancer in Canada, 1999). Whether the women who are of minority groups, who have lower education or lower income have been using BSE in place of mammography seems unlikely, but this has not been examined empirically. In an American study by Polenack, Lane and Burg (1991), level of education was found to be a significant independent predictor of mammography use during the last year. There was no mention of the predictability of BSE use.

BSE could be an easily adopted screening method for these people. BSE is inexpensive because there is no cost to get this procedure done, and there are no costs incurred through loss of work time, transportation or daycare for children. It is non-invasive, and non-hazardous as compared to mammography (Clark & Savage, 1999). It has been highly recommended because most lumps (90%), are reported to be found by women themselves (Baines et al., 1986; Tibble, 1999).

Considering that BSE is a highly accessible, effective, non-invasive screening procedure, a better understanding of who uses BSE could inform its promotion and help target BSE training programs. Given that, in women whose breast cancer is not detected by a mammogram, half will die of complications (Vogel, 1994) it is clear that some form of screening is vital.

Need for further BSE research. More research needs to be done regarding BSE use among all women to better understand the factors that are associated with women adopting this practice. The evidence supporting BSE as a means of decreasing cancer-related mortality rates is not strong, because differences in research design hamper comparison of results, and a lack of

follow-up research limits conclusions about long term effectiveness (Overmoyer, 1999; Sirovich & Sox, 1999). Additionally, weaknesses in measuring BSE use arise from participants' biased self-reports (e.g., as the researchers are unaware of the accuracy of the exam performed), and poor recall of the frequency of the exams (Baines et al., 1986). Finally, many of the studies of breast cancer screening do not measure one method of screening in isolation, but instead use combinations of mammography with CBE, and / or BSE (Sirovich & Sox, 1999). This does not reflect an accurate independent measure of BSE use, or the efficacy of this method. More research needs to be done to find the best ways of measuring BSE use.

Education's Impact on General Health Status

Overview

People and health should not be looked at in isolation of each other, but within the context of their physical, psychological, and economic environment (Bracht, 1990). Numerous studies measuring indicators of socio-economic status (SES) have found that higher levels of education are associated with lower levels of mortality, and higher levels of health (Cairney & Arnold, 1998; Cockerham, Glasser & Heuser, 1998; Kikers, 1999; Kunst & Mackenbach, 1994; Robert, 1998; Ross & VanWilligen, 1997; Ross & Wu, 1995; Schrijvers, Stronks, van de Mheen & Mackenbach, 1999; Smith et al., 1998; van der Meer & Mackenbach, 1998; Williams, 1990; Wolfe, Tedeschi, McMahon & Griffith, 1998). Having a higher level of education is associated with lower levels of psychological and physical distress, and a greater sense of control over

one's life and health (Ross & Van Willigen, 1997; Kikers, 1999). Ross and Wu (1995) argue through education, employment and income, individuals gain an increased sense of personal control. People with a greater sense of mastery over their everyday lives, believe that by taking action and performing healthy behaviours, they will have a positive impact on their health. Through education, people develop the skills necessary to solve problems on many levels, increasing their potential to control events and outcomes, and to be persistent in facing them. People with an increased sense of control are more knowledgeable about health; they are more likely to initiate preventive behaviours, such as quitting smoking, reducing fat and alcohol intake, and getting regular check-ups (Bracht, 1990; Ross & Wu, 1995; Williams, 1990). Given these relationships, it is interesting to examine the specific relationship between education and BSE practices.

Education and Health

Education, socioeconomic status and health. Education, income and occupation are somewhat related to each other (Mausner & Kramer, 1985; Williams, 1990), however, the specific links among these variables is not clearly understood. Some researchers believe that educational levels structure employment opportunities, and therefore an individual's ultimate position in the stratification system, as those with more education are more likely to be employed and have higher incomes (Cockerham et al., 1998; Ross & Van Willigen, 1997; Ross & Wu, 1995). Others suggest that education sorts people into different positions in the social system, and those positions are associated with different risks and rewards, shaping the stressors to which they are exposed, and the resources that are available for them to cope (Brint, 1999;

Cockerham et al., 1998). Thus, education is believed to provide people with the skills and information to deal with the stressors in their life, including low income and economic hardship (Cockerham et al., 1998). Similarly, income has been identified as having an association with improved health (Mausner & Kramer, 1985), but without education, income alone may not provide the skills or self-efficacy people need to take their health into their own hands. Indeed, research shows that people with lower levels of education and lower socioeconomic status tend to have higher rates of infectious disease, more chronic infections, poorer self-rated health, shorter survival rates when sick, and shorter life expectancy (Ross & Wu, 1995). Williams (1990) suggests that the unhealthy behaviours of people in lower SES groups is reflective in many cases of an inability to anticipate problems, or take action to cope with them, both of which are important for overcoming any barriers to health (Glanz, Lewis & Rimer, 1997). She concludes that people who are in the lower SES groups are busy concentrating on daily issues that are more pressing in their lives, such as their need for food, shelter and clothing, consequently issues surrounding health and preventive health care are not such pressing concerns (Williams, 1990).

Education, occupation and health. As noted above, education plays a very important role in selecting people for positions in the occupational stratification system and enhancing social mobility (Brint, 1998). Education can either limit or expand job opportunities such that people with higher education are less likely to be unemployed than those with less education, and are more likely to have full time jobs, fulfilling work, higher incomes, and less economic hardship (Cockerham et al., 1998; Ross & Van Willigen, 1997; Ross & Wu, 1995). Their jobs typically allow for greater autonomy, less routine work, a greater sense of control, and greater social

supports, allowing for greater psychosocial skills, and therefore, greater job satisfaction (Ross & Wu, 1995). Finally, people with higher education tend to get jobs with higher incomes, allowing them to afford their health expenses not covered by health care, to have better housing, nutrition, opportunities to relax, and time to take care of their health (Frankel, Speechley & Wade, 1996).

People with less education are more likely to work in unfavourable working conditions, which expose them to chemicals, noise, stress, poor social climates, more accidents, and hazardous waste (Mausner & Kramer, 1985; Williams, 1990). They are likely to be in less rewarding jobs where they have less control over what they do, fewer opportunities for growth and development, and therefore less pride and sense of accomplishment (Ross & Wu, 1995). These workers are less likely to receive support from employers, are more likely to face job insecurity, have fewer training opportunities, fewer chances for advancement, fewer benefits, and therefore, less job satisfaction (Ross & Wu, 1995). In addition, people with less education are more likely to struggle with unemployment, poverty, economic strain, feel stressed and worn out. These conditions may lead them to become depressed, which both decreases their immune resistance to illness and increases their susceptibility to infection and illness (Cockerham et al., 1998; Ross & Wu, 1995). The problems of unemployment, lack of income and inadequate housing are usually so overwhelming for people, that their health needs have low priority (Mausner & Kramer, 1985).

Education, social support and health. Social networks have a great impact on health: people who have greater education often have greater social supports, increased health, and decreased rates of mortality (Ross & Wu, 1995). Interpersonal relationships provide people with a sense of being cared for, of self-value, and increased personal confidence over their health

matters (Glanz, Lewis & Rimer, 1998). Social connections also provide a supportive ground where people can receive information, guidance and services which affect their health behaviours and health status (Glanz, Lewis & Rimer, 1998). Being less educated is associated with being unemployed, and thus with less support from social networks such as co-workers (Ross & Wu, 1995). Overall, those with less education have a lower self-esteem and self-efficacy, greater marital instability, and poor social supports with weaker community ties compared to those who have more education (Ross & Wu, 1995; Williams, 1990).

Education, lifestyle behaviours and health. Differences in health behaviours have been directly related to educational achievement such that the well educated tend to participate in healthier lifestyle behaviours (Smith et al., 1998; Ross & Wu, 1995; Williams, 1990). Those who are more highly educated are often more attentive to health information and are more accepting of claims from medical professions and scientists (Glanz, Lewis & Rimer, 1998; Williams, 1990). They also tend to have greater knowledge of health damaging behaviours, greater self-esteem and self-efficacy to take control of their health, and greater ability to optimise the health care services available to them when needed (Frankel et al., 1996; Ross & Wu, 1995; Smith et al., 1998). Overall, compared to less educated individuals, well-educated individuals are more likely to exercise, receive preventive health care, drink in moderation, and avoid smoking (Cockerham et al., 1998; Mausner & Kramer, 1985; Robert, 1998; Ross & Wu, 1995).

Education's Impact on Breast Cancer

Education and Breast Cancer

In studies examining women's knowledge of breast cancer, women with higher levels of education knew more about the risk factors and had fewer misconceptions about breast cancer than women with less education (Aiken et al, 1995; Lechner, deVries & Offermans, 1997; Saint-Germain & Longman, 1993; Tavani et al., 1999). Baquet and Commiskey (2000) determined that breast cancer mortality rates are the lowest among women of the highest SES groups. They argue that the higher one's SES, the better one's health outcomes and the more resources available. This is in part due to women in higher SES groups being diagnosed with breast cancer when it is less advanced, increasing their survival rates. On the other hand, women in the lower SES groups are usually diagnosed in the more advanced stages of cancer development, with a worse prognosis (Baquet & Commiskey, 2000).

Education and BSE

In the few studies that have measured the relationship between BSE and education, measurement of BSE use has been limited to the strict guidelines of "monthly frequency" only. Cases of women who perform BSE more or less frequently than once a month are not included in the results (e.g. Aiken et al., 1995; Saint-Germain & Longman, 1993). Results of these studies have suggested only a weak relationship between education and BSE practices.

Women's practices of prescribed once-a-month BSE exams revealed that BSE practices are relatively similar between women with higher and lower levels of education (Ontario Health Survey, 1990; Health & Welfare Canada, 1990). Similarly, according to the 1990 Health Promotion Survey Technical Report (O'Connor, 1993), BSE frequency declined slightly,

especially among women from the higher educational level group, equating the frequency of BSE practices across all educational groups. These levels declined from previous rates that were reported among the socially advantaged groups in the 1985 report. It was suggested that this decline in BSE use was due to a lack of breast-health education and reinforcement by health professionals (Health and Welfare Canada, 1990). Indeed, related research suggests that having had a visit to a physician within the last year was the highest predictor of mammography use (Bostick et al., 1994; Ministry of Health Ontario, 1990).

The decline in BSE practices may also reflect that the women themselves did not perceive BSE as being important. In a study of breast screening practices of American women who had all undergone prior mammography screening, Lauver (1999) concluded that the use of mammography and CBE were not predictors of BSE use, nor were demographic variables. The most prevalent predictors Lauver (1999) found for not performing BSE were negative feelings of anxiety or embarrassment.

Many studies of breast cancer screening practices have focussed on mammography, or have addressed multiple screening practices (e.g. BSE, CBE and mammography). Some studies, such as that by Polenack, Lane and Burg (1991), have determined that level of education is a predictor of mammography use during the past year. Whether these findings extend to BSE is unclear. Similarly, despite research showing that women who are economically disadvantaged, from a visible minority or in the youngest /oldest age groups are least likely to access mammography, there has been no empirical investigation of these women's use of BSE. Considering that BSE is a highly accessible, non-invasive screening procedure, a better understanding of who uses BSE could inform its promotion and help target BSE training

programs. Overall, more research, clearly delineating the relationship between education and the use of BSE, is needed to better understand the factors associated with BSE adoption.

Measurement Issues

Investigations of BSE use have been hampered by difficulties measuring the frequency and effectiveness of women's BSE practices. This is not surprising given that physicians follow different recommendations for screening and BSE training. For example, women whose physicians provide advice, training and reminders, tend to increase the frequency and accuracy of their self-exams (Clark & Savage, 1999). On the other hand, many women do not understand BSE to be an exam relatively equivalent to CBE (Saint-Germain, 1993), and thus may not practice frequent or effective exams. Researchers and doctors have not been able to arrive at a standard measure of BSE frequency and effectiveness.

Because effectiveness of a breast self-exam is difficult to assess without direct observational measures, most research has relied on a measure of frequency as an indicator of BSE effectiveness. One might argue that this approach is problematic because BSE exams that are preformed incorrectly may not lead to detection of lumps, no matter how frequently they are done. Conversely, it can also be argued that the practice of BSE – regardless of how frequently it is done – increases women's chances of detecting a cancerous lump, relative to not performing BSE at all. In accordance with the second proposition, the current study measures BSE as a dichotomous variable: use or non-use.

Purpose of Study

Objective

Most breast cancer studies only deal with treatment. Because there is no known cause for breast cancer, research needs to focus on early detection, the next best method of reducing mortality. There are not many studies that address the early detection of breast cancer with BSE, and there are even fewer studies that examine an association between the level of education women have, and whether they practice BSE. It is necessary to better understand the factors surrounding women's adoption of BSE to increase the use of this early detection method. Early detection is the key to decreasing breast cancer mortality rates, and BSE is a prime method of early detection.

Furthermore, there have been no comprehensive Canadian studies with a nationally representative sample examining the characteristics of women who practice BSE.

Finally, the consistent positive association between health and education, coupled with the strong interrelationship among education, SES, occupation and practice of health enhancing behaviours, points to the need for a systematic investigation of the relationship between education and BSE. Accordingly, this study will explore the relationships between education and BSE use with a nationally representative sample.

In particular, the interrelationships between sociodemographic variables and individual variables will be examined in order to predict BSE use.

The purpose of this study is to examine the relationship between levels of educational attainment and BSE use, as a healthy screening practice for Canadian women. It is hoped that by

examining this relationship, a better understanding of the use and adoption of BSE can be gained.

This study will also explore the relationships among BSE, some education and lifestyle factors in order to address the following questions... Does age, income, marital status, or first language, have an influence on the use of BSE among women? Is there a relationship between having a healthy BMI and the use of BSE? Is there a relationship between being physically active and the use of BSE? Is there a relationship between alcohol use and the use of BSE? Is there a relationship between the use of tobacco and the use of BSE?

Hypotheses

Primary Hypothesis

The primary hypothesis of this study was that there is a relationship between level of education and use of breast self-examinations. It was further hypothesized that, after controlling for demographic variables, the association between education and BSE use would remain significant. The following hypotheses were tested:

- 1) There is a difference between educational attainment and the practice of BSE among women.
- 2) There is a difference in the association between educational attainment and the practice of BSE among women when controlling for age.
- 3) There is a difference in the association between educational attainment and the practice of BSE among women when controlling for income.

Research Questions

Research questions were also included to allow the researcher to examine how certain demographic and behavioural factors could act as moderating or mediating influences on the association between educational attainment and the practice of BSE among Canadian women.

The following questions were explored:

- 4) Does income have an influence on the association between education and BSE among women?
- 5) Does marital status have an influence on the association between education and BSE among women?
- 6) Does first language have an influence on the association between education and BSE among women?
- 7) Does ethnicity have an influence on the association between education and BSE among women?
- 8) Does diet have an influence on the association between education and BSE among women?
- 9) Does activity have an influence on the association between education and BSE among women?
- 10) Does alcohol use have an influence on the association between education and BSE among women?
- 11) Does tobacco use have an influence on the association between education and BSE among women?

CHAPTER THREE: METHODOLOGY AND PROCEDURES

Overview

Secondary analysis was conducted on health promotion data collected from a nationally representative sample of Canadian women, with the goal of evaluating the links between educational attainment and the practice of breast self-examinations (BSE). The data for this study came from the 1990 Health Promotion Survey (HPS) conducted by Statistics Canada for Health and Welfare Canada. The HPS was a telephone survey of a national probability sample of Canadian residents across all 10 provinces. Data was collected from June 1 to June 30 of 1990, from 8:30am to 9:30pm Monday to Friday and during the day on Saturdays, by experienced interviewers working for Statistics Canada. The purpose of the survey was to gain a baseline of data on Canadians' knowledge, attitudes, beliefs, intentions and behaviours on a wide range of health promotion issues.

The dependent variable, BSE use, was operationalized as a dichotomous variable assessing the use or non-use of BSE. The women answered either yes, they did do BSE, or no, they did not do BSE. The independent variable, level of education, was re-coded from the original 10 categories provided by Statistics Canada into three: less than a high school degree, completion of a high school degree, and more than a high school degree. A number of demographic variables assessed the moderating effects on the relationship between education and BSE use. They were age, income, marital status, first language, and ethnicity. Information about the women's physical activity levels, body mass index, smoking behaviours and alcohol use was

also collected. These variables were used to look for relationships among women's healthy lifestyle behaviours and their use of BSE.

Measures

Educational background. Health Promotion Survey respondents were asked, "What is the highest grade or level of education you have ever attended or ever completed?" Possible responses were: no schooling; some elementary schooling; elementary schooling; some secondary schooling; secondary schooling; some post-secondary schooling; community college, technical college, CEGEP or nurses training; university, such as a B.A., M.A., or Ph.D; and other education or training. For the current study, the education variable was collapsed. Initially, the new education variable, included four response categories: elementary school or less; some secondary school; completed secondary school; and any post secondary education (including some / completed community college, CEGEP, nursing training; some / completed university or teachers college; or other post-secondary education or training). Preliminary analyses with this variable revealed a significant difference between respondents with less than a high school diploma and those with a high school diploma or greater than high school education. When comparing the results of the respondents and their BSE use, the numbers were very close for those women who had less than a high school diploma. The proportion of women who reported doing BSE who had a high school diploma or higher education also had very similar numbers, but these numbers were significantly different than those of the women with less than a high

school diploma. Based on these findings, the education variable was re-coded for most analyses into three response options: less than a high school diploma, completed a high school diploma, and greater than a high school diploma.

BSE. In regard to the practice of BSE, Health Promotion Survey respondents were asked, “How often do you perform breast self-examinations?” Possible responses were at least once a month; once every 2 - 3 months; less often; and never. (This question was re-worded from the 1985 survey, “examine your breasts,” to “perform breast-self-examination” to avoid ambiguity and increase the validity of this question). The original response categories were re-coded into a dichotomous variable for this study. As noted in the literature review, re-coding BSE frequency was done because the use or non-use of BSE is as important as, or perhaps more important than, the frequency of BSE use. Whether women do BSE is important because if women do not do BSE or any other kind of examinations, cancer will be more likely to be fatal when it does develop because it will not be found and treated early. The choice was made to make this a dichotomous variable based on the research of Maxwell and Kozak (1997) who examined the use and non-use of mammography among Canadian women. If a woman is not doing any sort of examinations.

Age. Respondents’ ages were reported in five-year intervals: 15-19, 20-24, 25- 29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75 and older.

Income. Income was used to identify the socioeconomic position of the participants. They were asked “What is your best estimate of the total income of all household members from all sources in 1989 before taxes and deductions?” The following sequenced set of responses were; less than \$5 000; \$5 000 to \$9,999; \$ 10,000 to \$14, 999; \$15,000 to \$19,999; \$20 000 to

\$39,999; 40 000 to \$59,999; \$60 000 to \$79,999; over \$80 000; no income; and don't know.

Marital Status. The Health Promotion Survey respondents were asked, "What is your current marital status?" The possible responses were: single; married or living common law; separated; divorced; or widowed. In the current study, these were collapsed for simplification into never married, married, and previously married.

Language. To gain an understanding of participants' cultural backgrounds they were asked about what language they speak. "What language do you speak most often at home?" The response options for language spoken were: English, French, Italian, Chinese, German, and Other. These six language categories were collapsed for this study into English, French and Other languages.

Ethnicity. The HPS respondents were asked about their cultural background more specifically by asking about their ethnicity. "Canadians belong to many ethnic or cultural groups such as Inuit, Irish, Scottish, French or Chinese. To which ethnic or cultural groups do you belong?" The response options for the ethnicity question were English, French, Scottish, Irish, German, Ukrainian, Italian, Dutch and Other. These nine categories on the survey were collapsed by Statistics Canada in the reporting of the responses in the code book into English, French, French-Canadian, Scottish, Irish, German, Canadian and Other Ethnicity.

Physical activity. The question used to assess physical activity was, "How many times per week, on average, do you exercise?" Response options were: Daily; 5-6 times a week; 3-4 times a week; 1-2 times a week; less than once a week, never and don't know. For part of the analysis, these response options were collapsed into two variables: active and inactive. Those women who were active 3-4 times a week or more were meeting the recommendations made by Health

Canada, and considered healthy. Those who were active less frequently than 3-4 times a week were rated as unhealthy.

Smoking. The Health Promotion Survey question related to smoking tobacco was: “At the present time do you smoke cigarettes?” which could be answered “Yes” or “No”. Women who reported that they did not presently smoke were labeled non-smokers. Former smokers were categorized as non-smokers based on their choice to quit, adopting a healthier behaviour.

Alcohol. Alcohol use was examined, using the following two questions, “In the past 12 months, how often on average did you drink alcohol?” The response categories were: every day; 4-6 times a week; 2-3 times a week; once a week; once or twice a month; less often than once a month; and not at all. The second question was, “Thinking back over the last 7 days, starting with yesterday, how many drinks did you have on each day?” The number of drinks in the past week was summed up from each day in the past week to create a weekly alcohol consumption measure.

Nutrition/Body Mass Index. The only question related to the nutritional value of participants’ diets was not designed to allow secondary researchers to assign a value to the results provided. Therefore the body mass index (BMI) variable available in the HPS data set was used instead.

Procedures

Data Collection. The sample for this study came from the 1990 Health Promotion Survey (HPS) conducted by Statistics Canada. The HPS was a telephone survey of a national probability sample of Canadian residents across all 10 provinces. Using a multi-stage, stratified random

sampling procedure, Statistics Canada surveyed 15,386 households. One person from each household was selected to provide detailed information. Persons living on Native reserves, military bases, institutions, and those living in the Yukon, or Northwest Territories were excluded. Of the 15,386 possible respondents aged 15 and older, 13,793 participated (a response rate of 78%).

Data Processing. Statistics Canada processed the data, coded the responses given, and entered the data to create the final data set that was used in this study.

Methodological Assumptions

This study is based on the central tenets of positivist science, and involves the quantitative analysis of data. It was the opinion of the author that this research methodology is the most appropriate given the nature of the research question. For example, while qualitative research can provide useful, in-depth detail about a small group of people within a specific situation, it is difficult to generalise the findings of this kind of research to the rest of the population. Moreover, there is approximately 25-30% (Overmoyer, 1999), and because such a large sample is available in this survey, it is important to take this opportunity to apply quantitative techniques in this study. Experimental research is designed to demonstrate causality between variables. This is the most desirable form of research because the researcher has sufficient control over the experiment situation to control for internal threats of validity that may obscure the true nature of observed relationships. While this design is regarded as the strongest in the positivistic sciences, there are many examples where this design is simply not feasible. In

the present case, it is difficult to design an experiment because it would not be ethical to deny people an education, or to dictate how much education they have to receive. It is assumed that a survey is the best method for gathering data to study the association between education and BSE use, because it will provide a large picture of BSE use in the population. The most appropriate method to approach this problem would be a survey dedicated to BSE, but for this study, this was not a feasible choice. Instead, a correlational analysis of the secondary data was performed.

Limitations

The 1990 Health Promotion Survey (HPS) data was chosen for this study because it provides a nationally representative sample, and has relevant responses related to population health and education. A survey could have been created to gain more detailed responses, but it would be difficult to reach such a large and representative sample as the HPS. It is important to have such a large sample, as it will provide a greater number of participants who perform BSE than a small convenient sample. This data set provided a nationally representative sample of Canadian women and their use of BSE.

Survey data collection is open to some error, such as participants misunderstanding the meanings of some of the questions. Self-reports of participants may also be biased, slightly inflating BSE use reports. These types of errors tend to be randomly distributed in a sample, and are expected not to have a significant effect on the results.

CHAPTER FOUR: RESULTS

Overview

This chapter presents the results of the testing of the primary hypothesis that educational attainment influences the use of BSE. This chapter also contains results related to testing of the secondary hypotheses that neither age nor income influences the association between education attainment and BSE use. Further results are presented as to the relationship between each of the following variables and BSE use: marital status, language, ethnicity, physical activity, smoking, alcohol consumption and BMI. Additional research findings are also presented.

Data Screening. Because the dependent variable was adult women's use of breast self-examinations, all males were excluded from this sample. List-wise deletion for gender resulted in the elimination of 6,179 males. Additionally, all female respondents under the age of 20 were excluded from this sample. The age of 20 was chosen for two reasons. First, eliminating respondents under the age of 20 was consistent with the goal of exploring adult women's use of BSE. Second, because education was a key variable of interest, selecting women 20 and older would help ensure that they would have completed their education at this stage in their life. A total of 274 women under the age of 20 were also eliminated. Finally, from ethnicity, 226 cases were deleted, 185 from language were dismissed, and 180 cases were removed from the marital status category. Income was not included in the list-wise deletion because too many (1,315) cases would be eliminated. The other cases were eliminated because to avoid having too many incomplete data sets.

Following a list-wise deletion of cases with missing values for education, ethnicity,

language, and marital status, the total sample was reduced to 7,339. In list-wise deletion, any case that has even one missing datum will be completely omitted from the analysis (Palys, 1997). A disadvantage of this procedure is that often many cases are thrown out, leaving only a very small sample for analysis.

Sample Characteristics

Demographic Characteristics

Age of the respondents was coded in 5-year intervals. The proportions of women in each category were as follows: 20-24 years, 9.2%, 25-29 years, 12.9%, 30-34 years, 14.7%, 35-39 years, 11.1%, 40-44 years, 8.7%, 45-49 years, 6.3%, 50-54 years, 5.6%, 55-59 years, 6.4%, 60-64 years, 6.2%, 65-69 years, 6.3%, 70-98 years, 12.9%.

The income of the subjects was initially measured in the 8 following categories: less than \$5,000 (1.4%), \$5,000-\$9,999 (7.8%), \$10,000-\$14,999 (11.0%), \$15,000-\$19,999 (11.5%), \$20,000-\$29,999 (16.0%), \$30,000-\$49,999 (19.4%), \$50,000-\$59,999 (19.6%) \$60,000-\$79,000 (8.2%), more than \$80,000 (5.1%). The income category was divided in half (47.7% had less than \$30,000) for the analyses.

There were more married women (54.5%) in the sample, than never married women (22%) or separated, divorced or widowed women (23.5%).

English speaking women accounted for 80.6% of the women, 14.5% spoke French only, and the remaining 4.5% spoke another language.

Although the original survey question assessing ethnicity offered the following

categories: English, French, French-Canadian, Scottish, Irish, German, Canadian and Other, Statistics Canada collapsed these categories and reported only that the sample was 15.6% English, 9% French, 4.3% French-Canadian, 5.2% Scottish, 4.8% Irish, 4.0% Canadian, 25.7% and 31.4% other ethnicities.

Behavioural Characteristics

In this study, 11.3% of the 7,339 women who answered reported that they had not ever had a drink. Of those 7,277 women who did report drinking, 65% reported that they had not consumed alcohol in the last week, and 34.5% reported that they had consumed at least one drink during that same period. Most women (70.7%) reported that they were non-smokers; 29.2% reported that they were smokers.

Women in the sample reported that 26.6% of them were never physically active as outlined in the question. 22.6% reported that they were active less than once a week, 7.3% were active 1 to 2 times per week, 21.2% were active 3 to 4 times a week, 19.0% were active 5 to 6 times per week, and 2.9% were active daily.

The women in the study had BMIs ranging from 12.9 to 53.1, 10.9% of them were considered unhealthy at a score of 30 or more, and 89.1% of the women were considered healthy with a score under 30.

Description of BSE Use and Education

From the sample, 9.8% of the women had less than a high school degree, 25.4% had

received their high school degree and 64.8% had greater than a high school degree.

BSE use was reported by 73% of the sample, and non-use by 26.6%. Similarly, 69.7% of the sample reported having had a mammogram and 29.5% reported not having had one.

Primary Hypothesis

The primary hypothesis predicted that educational attainment and BSE use would be related. Chi square analyses revealed a significant relationship between educational attainment and BSE use $\chi^2(2, N=7,314)=145.084, p<.001$. As shown in Table 1, women with a high school diploma and those with post-secondary education were significantly more likely than expected to use BSE.

Secondary Hypotheses

Impact of Age

In order to determine whether age would have an influence on BSE use, a chi square analysis was done. As shown in Table 2, the use of BSE was influenced by age, $\chi^2(10, N=6,814)=171.376, p<.001$. The women in the 20-24 age group reported not doing BSE more than would be expected. Women in the 35-39, 40-44 and 45-49 age groups reported not doing BSE less than would be expected, and the women in the 70 and higher age group reported doing BSE less than would be expected if the null hypothesis were true.

Age, education and BSE use. To test the hypothesis that age would influence the association between educational attainment and BSE use, the 11 age categories were collapsed

Table 1

Relationship Between BSE Use and Education

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Less than High School	905	35	8.3	1667	65	-5.0
High School Completed	645	22	-4.5	2237	78	2.7
Post Secondary	405	22	-4.1	1455	78	2.5

$\chi^2(2, N=7,314)=145.084, p<.001$

Table 2

Relationship Between BSE Use and Age

Age	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
20-24	197	31	3.4	431	69	-1.9
25-29	218	25	0.0	664	75	0.0
30-34	217	22	-1.9	782	78	1.1
35-39	122	16	-4.7	636	84	2.7
40-44	106	18	-3.3	485	82	1.9
45-49	86	20	-2.09	346	80	1.1
50-54	878	75	-0.7	293	25	0.7
55-59	98	23	-0.8	335	77	0.5
60-64	104	25	-0.1	320	75	0.0
65-69	106	25	0.1	320	61	-0.1
70 and older	339	39	8.7	522		-5.0

 $\chi^2(10, N=6,814)=171.376, p<.001$

into three categories: 20-49 years; 50-69 years; and 70 and older. These groupings represent ages of women who are not yet eligible for mammography, who are eligible for mammography, and who are no longer eligible, respectively.

Including women 20-49 years only, a chi square analysis was done with education level and BSE use. The chi square analysis revealed a significant relationship, as shown in Table 3, $\chi^2(2, N=3,858)=24.858, p<.001$. The significance of this relationship is attributable in part to an unexpectedly high number of women in the lowest educational groups who reported not doing BSE. For the categories completed high school, and some post-secondary, the number of women who reported not doing BSE was lower than expected.

When this analytical procedure was repeated with only 50-69 year old women, the chi square analysis showed that there was not a significant relationship between education and BSE use $\chi^2(2, N=1,663)=7.448, n.s.$

In order to determine if being 70 and older would have an influence on the relationship between education and BSE use, a chi square analysis was done. There was not a significant relationship $\chi^2(2, N=861)=3.740, n.s.$

Impact of Income

Income and BSE use. In order to find out if income and BSE were related a chi square analysis was done. A significant relationship between these variables was found, $\chi^2(8, N=6,213)=68.177, p<.001$ (see Table 4). There were fewer women practicing BSE than would be expected in the less than \$5,000 income group, \$5,000 to \$9,999 income group, and the \$10,000 to \$14,999 income group. As well, the \$30,000 to \$59,999 income group, the \$60,000-\$79,999

Table 3

Relationship Between BSE Use and Education for Women Under 50

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Less than High School	214	29	3.9	523	71	-2.1
High School Completed	364	20	-2.0	1,448	80	1.1
Post Secondary	282	22	-0.6	1,027	78	0.3

$\chi^2(2, N=3,858)=24.858, p<.001$

Table 4

Relationship Between BSE Use and Income

Income Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Less than \$5,000	31	36	2.0	56	64	-1.1
\$5,000-9,999	172	36	4.7	311	64	-2.7
\$10,000-14,999	202	30	2.3	484	70	-1.4
\$15,000-19, 999	200	28	1.7	512	72	-1.0
\$20,000-29,999	242	24	-0.4	753	76	0.2
\$30,000-49,999	277	23	-1.4	927	77	0.8
\$50,000-59,999	268	22	-2.1	951	78	1.2
\$60,000-79,000	102	20	-2.3	410	80	1.3
\$80,000 and more	58	18	-2.3	257	82	1.3

 $\chi^2(8, N=6,213)=68.177, p<.001$

and the \$80,000 and over income group had more women practicing BSE than would be expected if the null hypothesis were true.

Income, education and BSE use. It was hypothesized that income would influence the association between educational attainment and BSE use. To test this hypothesis, the income categories were collapsed into two categories representing low income (less than \$30,000), and high income (greater than \$30,000).

A chi square analysis was done to determine whether education influences BSE use when controlling for high income. As shown in Table 5, there was a significant relationship between education and BSE use for women in the high income group, $\chi^2(2, N=3,250)=32.369, p<.001$. Women who had less than a high school education, reported doing BSE less than would be expected if the null hypothesis were true.

A chi square analysis was done to determine whether education predicts BSE use when controlling for low income. As shown in Table 5, there was a significant relationship between women with a lower income and those who use BSE $\chi^2(2, N=2,963)=21.775, p<.001$. Women who had less than a high school education reported doing BSE less than would be expected if the null hypothesis were true. Women who had received a high school degree, reported doing BSE less than would be expected if the null hypothesis were true.

Impact of Marital Status

Marital status, education and BSE use. To determine whether marital status would have an impact on whether women use BSE, a chi square analysis was done. There was a significant relationship, as shown in Table 6, $\chi^2(2, N=7,314)=159.452, p<.001$. Married women were more

Table 5

Relationship Between BSE Use and Education, Controlling for Income

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
High Income (\$30,000+) ^a						
Less than High School	177	31	4.6	403	69	-2.4
High School Completed	287	20	-1.6	1,166	80	0.8
Post Secondary	241	20	-1.4	976	80	0.7
Low Income (Under \$30,000) ^b						
Less than High School	456	33	2.9	940	67	-1.8
High School Completed	266	25	-2.5	817	75	1.6
Post Secondary	125	26	-1.1	359	74	0.7

^a $\chi^2(2, N=3,250)=32.369, p<.001$ ^b $\chi^2(2, N=2,963)=21.775, p<.001$

Table 6

Relationship Between BSE Use and Marital Status

Marital Status	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Never Married	578	36	7.0	1,038	64	-4.2
Married	833	21	-7.1	3,155	79	4.3
Previously Married	542	34	3.5	1,066	66	-2.1

$\chi^2(3, N=7,314)=165.962, p<.001$

likely to do BSE, and single women were less likely to do BSE, than would be expected if the null

hypothesis were true.

Never married women and BSE use. A chi square analysis was done to determine whether education predicts BSE use when controlling for marital status. As shown in Table 7 there was a significant relationship between education and BSE use among never married women $\chi^2(2, N=1,616)=86.082, p<.001$. Of the women who had completed high school or more education, there were more women reporting that they did do BSE, and fewer women reporting they did not do BSE than would be expected if the null hypothesis were true.

Married women and BSE use. A chi square analysis was done to determine whether education predicts BSE use among married women. As shown in Table 7, there was a significant relationship between education and BSE use among women who were married $\chi^2(2, N=3,988)=29.891, p<.001$. Women with less than high school reported that they did BSE less than would be expected if the null hypothesis were true. Women who had a high school diploma reported not doing BSE less often than would be expected.

Previously married women and BSE use. A chi square analysis was done to determine whether marital status predicts BSE use. As shown in Table 7, there was a significant relationship between education and BSE use among previously married women $\chi^2(2, N=1,710)=28.008, p<.001$. Of the women with less than high school, more women than would be expected reported not doing BSE. For the women with a high school diploma, fewer women reported not doing BSE than would be expected if the null hypothesis were true.

Table 7

Relationship Between BSE Use and Education, Controlling for Marital Status

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Never Married ^a						
Less than High School	261	52	6.1	239	48	-4.6
High School Completed	195	30	-2.7	464	70	2.0
Post Secondary	122	27	-3.2	335	73	2.4
Married ^b						
Less than High School	313	26	4.1	878	74	-2.1
High School Completed	312	19	-2.0	1,362	81	1.0
Post Secondary	208	19	-1.7	915	81	0.9
Previously ^c						
Less than High School	331	38	3.0	550	62	-2.1
High School Completed	138	25	-2.8	411	75	1.9
Post Secondary	75	27	-1.5	205	73	1.0

^a $\chi^2(2, N=1,616)=86.082, p<.001$ ^b $\chi^2(2, N=3,988)=29.891, p<.001$ ^c $\chi^2(2, N=1,710)=28.008, p<.001$

Research Questions

Impact of Cultural Background

First language and BSE use. A chi square analysis was done to determine whether BSE use is related to language spoken at home. The response categories for language were English, French and Other. As shown in Table 8, there was a significant relationship between first language and BSE use, $\chi^2(2, N=7,314)=22.289, p<.001$. French speaking women, and those speaking languages other than English, were more likely than expected to be non-users of BSE.

Ethnicity and BSE use. Chi square analyses did not reveal a significant relationship between ethnicity and BSE use, $\chi^2(7, N=7,314)=12.174, n.s.$

Impact of Lifestyle Factors

BMI and BSE use. An independent samples t-test was done to determine if there were differences between the women's BMI and their use of BSE. There was not a significant difference, $t(7,312)= -0.963, n.s.$ The women who did not do BSE had an average BMI of 24.9, and the women who did report using BSE had an average BMI of 25.2.

Physical activity and BSE use. In Table 9 the results of the chi square analysis show the significant relationship between physical activity and BSE use, $\chi^2(5, N=7,281)=97.136, p<.001$. Those women who were physically active 1 to 2 times per week, reported doing BSE more frequently than would be expected, and the women who reported that they were physically active zero times a week, did BSE less frequently than would be expected if the null hypothesis were true.

Table 8

Relationship Between BSE Use and First Language in the Home

Languages	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
English Only	1,507	25.5	-1.8	4,393	74.5	1.1
French Only	333	31.3	2.9	731	68.7	-1.7
Other	115	32.9	2.2	235	67.1	-1.3

$\chi^2(2, N=7,314)=22.289, p<.001$

Table 9

Relationship Between BSE Use and Physical Activity

Frequency of Physical Activity	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Don't Exercise	675	53.4	7.0	1,265	46.6	-4.2
Less than 1/ Week	56	26.2	-0.1	158	73.8	0.1
1-2 Times / Week	296	21.3	-3.9	1,095	78.7	2.3
3-4 Times / Week	375	24.1	-1.9	1,181	75.9	1.2
5-6 Times / Week	123	23.1	-1.6	409	76.9	0.9
Daily	413	25	-1.2	1,235	75	0.7

$\chi^2(5, N=7,281=97.14, p<.001$

Alcohol use and BSE use. A Mann Whitney U test was done to determine whether women who do and don't do BSE differ in terms of alcohol consumption. This is a nonparametric test that is commonly used as an alternative to the independent samples t-test when the normal assumptions are violated. In this case, the dependent variable (alcohol consumption) is measured on an ordinal scale, and the scores were extremely skewed, violating the normal distribution assumption of the t-test.

The results showed that the women who did not use BSE drank, on average, 1.6 alcoholic drinks per week and the women who did report having used BSE drank an average of 1.56 alcoholic beverages. No difference was found between the amount of alcohol consumed by the women who do and don't do BSE, $U = 4970879.5$, *n.s.*

Tobacco use and BSE use. Women reported whether they smoked. A chi square analysis was done to determine whether BSE use is related to smoking. There was not a significant relationship between education and BSE use $\chi^2(1, N=7,310)=0.031$, *n.s.*

Additional Exploration of Hypotheses

Women Under 50

Impact of income. A chi square analysis was done to determine whether education is related to BSE use when controlling for high income in women under 50. There was not a significant relationship between income and BSE use $\chi^2(2, N=2,433)=7.158$, *n.s.*, with 77.9% reporting BSE use for this sample of the population.

A chi square analysis was done to determine whether education predicts BSE use when

controlling for low income in women under 50. When controlling for low income, there was not a significant relationship between income and BSE use $\chi^2(2, N=1,492)=5.656, n.s.$ Overall, 74.8% of low income women under 50% do BSE.

Impact of Marital Status

A chi square analysis was done to determine whether education predicts BSE use in single women under 50. There was not a significant relationship between marital status and BSE use $\chi^2(2, N=1,009)=0.695, n.s.$ Overall, 74% of never-married women under 50 do BSE.

A chi square analysis was done to test whether there was an association of education on BSE use for women who were under 50 years of age. There was a significant association $\chi^2(2, N=4,290)=29.796, p<.001$ as shown in Table 10. The frequency of women with less than high school who were BSE users was less than would be expected if the null hypothesis were true. When this analytical procedure was repeated with the women who were over 50 years of age, there was again a significant association $\chi^2(2, N=2,524)=18.430, p<.001$, as seen also in Table 11. Women with less than a high school education continue to use BSE less than would be expected if education did not predict BSE use.

A chi square analysis was done to determine whether education predicts BSE use in married women under 50. As shown in Table 11 there was a significant relationship between marital status and BSE use $\chi^2(2, N=2,735)=24.880, p<.001$. Women with less than high school reported not doing BSE less than would be expected if the null hypothesis were true.

A chi square analysis was done to determine whether education predicts BSE use in previously married women under 50. There was not a significant relationship between marital

Table 10

Relationship Between BSE Use and Education, Controlling for Age

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Under 50						
Less than High School	253	28.8	4.2	626	71.2	-2.3
High School Completed	392	19.8	-2.1	1,585	80.2	1.1
Post Secondary	301	21	-0.9	1,133	79	0.5
Over 50						
Less than High School	451	32.6	2.4	933	67.4	-1.5
High School Completed	183	25.2	-1.9	542	74.8	1.2
Post Secondary	100	24	-1.9	315	76	1.2

^a $\chi^2(2, N=4,290)=29.796, p<.001$
^b $\chi^2(2, N=2,524)=18.430, p<.001$

Table 11

Relationship Between BSE Use and Education, Controlling for Married Women Under 50

Education Levels	BSE Non-Use			BSE Use		
	<u>n</u>	<u>%</u>	<u>zresid</u>	<u>n</u>	<u>%</u>	<u>zresid</u>
Less than High School	152	26.8	4.0	416	73.2	-2.0
High School Completed	218	17.3	-1.8	1,049	82.8	0.9
Post Secondary	161	12	-1.0	739	82	0.5

 $\chi^2(2, N=2,735)=244.880, p<.001$

status and BSE use $\chi^2(2, N=546)=9.820$, *n.s.*.

Healthy behaviours versus unhealthy behaviours. Four behavioural variables (physical activity, BMI, alcohol and tobacco use) were used for this part of the analyses. Each variable was given a healthy and unhealthy range, and participants were grouped within each variable accordingly. People who were active three or more times in a week were considered healthy. Those who had a BMI within the recommended range of 20-30 were rated as healthy. Women who drank the recommended 9 or fewer drinks in a week were ranked as healthy, and women who reported that they did not smoke were rated as healthy, in each of these behaviours. The four variables were then combined, and any women who had all four behaviours ranked as either healthy or unhealthy were compared in a chi square analysis. This was done to determine if there was a relationship between their choice of either healthy or unhealthy behaviours and their use of BSE. There was not a significant relationship between women's choice to adopt healthy or unhealthy behaviours $\chi^2(3, N=7,314)=10.635$, *n.s.*

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Discussion

Summary

The purpose of this study was to gain a better understanding of how education is related to women's use of BSE. To further our understanding of this relationship, demographic variables thought to have an impact on this association were taken into account. Exploratory analysis was also done to determine whether women's choices to adopt other health behaviours (moderate drinking, not smoking, being physically active, and eating healthy) were related to their use of BSE. As reported below, BSE use was dependent on level of education across a wide variety of demographic characteristics.

Level of education predicted the use of BSE for women who were 20-49 years of age when controlling for income or marital status. For the women who were under 50, education was predictive of BSE use in married women only, but not the never married or previously married women, high income or low income groups. For the women under 50, the married women who were doing BSE seemed to constitute such a large portion of the under 50 age group, that their responses effected the final results, because they were no longer significant after separating out the married women.

Education and BSE Use

Analysis of data collected from a nationally representative sample of Canadian women

revealed that just over one third did not do BSE in the past year. Consistent with past research suggesting higher education is related to the adoption of health practices and having better health (Ross & Van Willigen, 1997; Kikers, 1999), the findings of this study showed that women's use of BSE was dependent upon level of education. Among women not doing BSE, almost half were poorly educated (less than a high school diploma). Conversely, among women doing BSE, less than one third were poorly educated.

As suggested in the literature, education predicts people's involvement in health behaviours, which could be related to a greater exposure to health education for those who stay in school longer. Regardless of whether it is health classes, or just greater knowledge that is attained, more education increases these people's self-efficacy to take care of their own health and to seek out preventative health measures (Robert, 1998). More work needs to be done to target those women with less education and fewer resources to encourage greater accessibility and equality in the use of breast health resources for all women.

Demographic Characteristics and BSE Use

Age. Aside from being female, age is the second greatest risk factor for breast cancer as women's exposure to carcinogens is ever-increasing and compounding over the years (Rebbeck, 1999; Simone, 1995). A cancerous growth takes time to develop to a size that is detectable, so it is not likely to be discovered for a few years after it first begins to proliferate (Patterson, 1994). For these reasons, breast cancer is more common in older women. The current finding that BSE use was related to age was consistent with previous research.

When examining the relationship between BSE use and age, it was determined that a

greater proportion of women between the ages of 35 and 49 used BSE than the other age groups. Specifically, while three quarters of women under the age of 35 or over 50 practiced BSE, more than 80% of women in the over 35 to 49 age categories did so. This could be related to an increased awareness of the importance of BSE through better health education programs. It could also be related to the fact that these women are at an age where they are bearing children and they feel a need to ensure their health to manage their families effectively. It is also possible that doctors provide reminders to these women who are likely to see their doctor more regularly than non-married women. For the women who were 20 to 29 and over 70 years of age, these women probably do not see themselves as susceptible to breast cancer, as evidence does show the younger age category are less likely to be diagnosed with breast cancer, and therefore do not feel a need to do BSE.

That most women between 35 and 49 years of age are practicing BSE is a welcome finding. Women under 50 years are at higher risk of failure to detect breast cancer because these women cannot yet access mammography. When BSE practices of women under 50 were examined, education was again shown to be related to use of BSE. While two out of ten women who were better educated, failed to use BSE, three in ten poorly educated women failed to do so.

When the association between education and BSE use was examined based on women's marital status, education was found to be related to BSE use for women under 50 who were married. The level of education of the never married or previously married women under 50 was not related to whether they used BSE. These relationships were consistent across levels of income.

Although the results show relatively high use of BSE among women under 50, further

analysis of this age group revealed that a division point for education predicting BSE use appeared between women in their 20s and women in their 30s. To explore the 20 to 49 age group more effectively, the age groups were split. The BSE practices of women 20 to 29 were measured separately from those women in the 30 to 39 age group. Despite the fact that younger women have attained higher levels of education (80% had received their high school diploma or had post secondary education, compared to 45% of women who are 30 to 49), which is associated with having a higher self-esteem to take control of their own health, these young women are not performing BSE. Among women in the youngest age group (i.e., 20 – 29 years old), close to one-third failed to perform BSE, whereas for the 30 to 49 age group, it was less than one fifth.

When educational level of the women 20-29 is taken into account, the proportion of women in the youngest age group using BSE remains relatively low across all educational levels, with just over two-thirds using BSE. Among the 30-49 year olds on the other hand, less than one-fifth neglected this health behaviour, and BSE use was lowest for women with less than high school. This difference is likely because the young do not feel they are at risk. It is the women with higher levels of education who will be more likely to critically evaluate the claims being made by health professionals to make an informed decision regarding which behaviours they chose.

It is not surprising that most women between the ages of 50 and 69 practiced BSE. The middle age group (50-69), was eligible to receive mammography, and would have therefore been receiving information and recommendations in regards to breast health from health professionals, health promoters, and the media. On the other hand, the finding that 50 to 60 year old women with the least education were not as likely to use BSE as women with more education suggests

we are not reaching all women equally. The same is true for the women who were in the older age group (70 plus), although less pronounced, they also might have been targeted in breast health promotion initiatives and received advice from their doctors. In general, women over 50 years of age have lower levels of education than younger women, which is in part due to the generation they come from. However, they have been educated by their life experiences. Women who are 50 years and older are more likely to have children than the women under fifty years of age. It would seem that with child bearing and increasing age, women are likely to see the physician more often, and therefore may be influenced through greater health education and promotion of healthy behaviours.

Income. Level of education is thought to be associated with income as education tends to be predictive of the position in society that is assumed, and therefore the level of income that is acquired (Ross & Van Willigen, 1997; Ross & Wu, 1995; Williams, 1990). Younger women and never married women are likely to be in the lower income category as they would not be as likely to have reached their full earning potential or have the benefit of a second income from a spouse or partner as married women would have. Not surprisingly, having a higher level of income predicted an increasing use of BSE among the women in this nationally representative sample.

When the relationship between women's use of BSE and education was examined separately for high and low income groups, some interesting findings emerged. Among low income respondents, the relationship between education and BSE use persisted, with the less educated women being less likely than expected to do BSE. This finding is consistent with literature which states people with less financial supports are often less likely to maintain healthy behaviours, as the burdens and stresses of everyday life are more in the forefront of their mind,

taking priority (Cockerham et al., 1998). Among women with higher incomes however, BSE was not related to level of education. Thus women with higher incomes (greater than \$30,000) who had less than a high school diploma, had higher rates than usual of BSE use, narrowing the gap between the education levels. Perhaps it is the cumulative effect of a high income and some education that has enhanced the proportion of women using BSE across all education levels.

Marital status. To gain a better understanding of how marital status might influence health behaviour, education and BSE use were looked at. Education was found to be related to BSE use for never married women and for previously married women, but not for married women. Overall, married women had higher rates of BSE use than the never married and previously married respondents in all of the education levels. It is possible that married women receive more recommendations regarding their health from their doctors as they are likely to see them more than non-married women. It is also possible that because of greater financial and emotional support from family they are better able to take care of their health (Glanz, Lewis & Rimer, 1998). People with higher levels of education are more likely to have better social supports and stronger interpersonal relationships. These relationships tend to lead to a sense of being cared for and increased self-confidence and increased health (Glanz, Lewis & Rimer, 1998; Ross & Wu, 1985).

Cultural Background. Because the measures of language / ethnicity were not comprehensive, the results provide little relevant information to this study. For example, Statistics Canada did not provide original results on ethnic background. The groups that were reported only were groups that were of European origin. The collapsed groups lacked representation of the Asian, Indian and African people, and provided a very homogenous

reflection of the diverse ethnicities in Canada. BSE use was not found to be associated with ethnicity when it was defined as English, French, Scottish, Irish, German, Ukrainian, Italian, Dutch and Other. While there may be some differences in BSE use between the ethnic groups in Canada, it would seem that clearer reporting of the different groups would offer a better reflection of the true BSE use by ethnicity.

When the language women spoke was used as a proxy for cultural background, the results that were gathered were quite homogenous with the majority of women speaking English (80.6%). Not having many languages reported (only English, French and Other), or a more equal division of women in the various language groups, the results did not provide a very clear picture of how women's languages might impact their use of BSE. The results did show that English speaking women used BSE more than the French (14.5%) and Other language groups (4.5%). This could be related to a greater number of non-English speaking women not receiving the same information as the English speaking women from health professionals and the media.

Lifestyle Factors and BSE Use

Although some recent research has raised doubts about the causal relationship between breast cancer and lifestyle factors (such as exercise, diet and alcohol-use) (Mouchawar et al., 1999; Tavani et al., 1999), the relationship between healthy lifestyle behaviours and the practice of BSE has not been fully explored. This nationally representative sample of adult women was relatively healthy. Less than 30% reporting they smoked, less than 5% reporting they drank excessively (more than 9 drinks per week), and less than 20% of the women were obese. Furthermore, only 3% of the women reported having three or four unhealthy behaviours and one

third had no unhealthy behaviours.

As is the case with breast cancer, the practice of healthy lifestyle behaviours was only weakly related to BSE use. When the relationship between number of risk factors and use of BSE was examined, no relationship was found. In other words, women who didn't smoke, who didn't drink excessively, and exercised and who had a healthy BMI were no more likely to perform BSE than their unhealthy counterparts. It is very likely that people often choose to be healthy in some aspects of their life to counter an unhealthy behaviour in another to compensate. The relationship between BSE use and individual health practices is detailed below.

Physical activity. People with higher education are more likely to live more active lives and be more fit (Cockerham, et al., 1998). Frequency of aerobic activity among the women surveyed was associated with their use of BSE. In particular, women who were active 1-2 times per week, were more likely than expected to do BSE, while women who never exercised were less likely than expected to do BSE. The women (who are active 1 to 2 times per week) seemed to be consciously choosing to participate in healthy behaviours by being active, and doing BSE. It would seem that they were engaging in a minimum level of physical activity because they thought that they should to be healthy, just as they knew they should be doing BSE. The women who were not physically active remained consistent in their avoidance of healthy behaviours, by not doing BSE. Perhaps the women who were active 3 to 4 times per week or more were doing so because they enjoyed what they were doing, or because they liked how it made them feel, not because they felt obliged.

Being physically active is associated with a decreased incidence of breast cancer for many reasons, such as increased immune function, control of healthy body weight, and decreased levels

of estrogen (Epstein & Steinman, 1997; Greenberg & Dintiman, 1997; Rockhill et al., 1999). The women who are more physically active are less likely to consume high-fat diets (Kradjian, 1994). Indeed, when comparing the women who were below the recommended cut off for BMI, and those who were above the cut off for the healthy range, the results showed there was no difference between these women's use of BSE. There is some controversy over the efficacy of doing BSE on women who are obese, because detecting changes in the tissue can be difficult. Still, the fact that the frequency of BSE use is the same between the two groups suggest that there is no difference between these women based on their BMI.

Alcohol and tobacco use. The results of this study showed that the women who used BSE did not have different weekly alcohol consumption levels from those women who did not use BSE. Likewise, there was no relationship between tobacco use and BSE. The absence of a relationship between smoking and BSE use was a surprising finding, as women who smoked were expected to be less likely to practice other health behaviours such as BSE. Perhaps this similarity in BSE use between the smokers and non-smokers is because of the highly publicized risk smoking has on the development of cancer. Women who smoke may have been made aware of the effects of the carcinogens in tobacco, and so are inclined to practice BSE, knowing they are at greater risk. Perhaps women who smoke have been targeted and educated about the risks of cancer. Previous research has linked healthy behaviours with a decreased risk of cancer. It would be interesting to see if smokers do BSE to counter their risk for breast cancer.

Limitations

The 1990 Health Promotion Survey (HPS) data was chosen for this study because it provides a nationally representative sample, and has relevant responses related to population health and education. Secondary analysis allowed the researcher to explore trends in the data, but it did not necessarily permit detailed exploration of unexpected or interesting findings. In the current study, it would have been interesting and informative to further explore why a low proportion of younger women did not perform BSE.

Survey data collection is open to some error, such as participants misunderstanding the meanings of some of the questions. Self-reports of participants could also be biased. These types of errors tend to be randomly distributed in a sample, and are expected not to have a significant effect on the results.

While the multiple effects of marital status, income and education on BSE use were explored, it was not possible to fully extrapolate how family relationships fit in. For example, income was assessed on the basis of household earnings thereby confounding the relationship between income and marital status. Never married women would be reporting individual earnings while married women would be reporting earnings of themselves and their partner. Even when controlling for low and high income, single women would be more likely to be in the low income groups, and married women in the high income groups. Had the survey questions been more specific in the area of income and marital or partner status, this association might have been dissected and more fully understood.

The study relied on self-reports on BSE use. With this, two concerns arise. First, the accuracy of self-reported BSE use might not be very accurate, as respondents sometimes feel the need to exaggerate their results reporting they are behaving better than they do. Second, when

the women report that they do BSE, it cannot be determined whether they are doing a thorough and accurate examination of their breasts.

Recommendations

Based on the findings that education predicts the use of BSE, and that income and age seem to have some influence on this association, it would seem that special attention needs to be directed at creating programs directed at women who are younger, of lower SES, and with less education. Overall, women who are younger (under 50) with less education and lower income (less than \$30,000) need to be targeted, as it was found that the differences between BSE use was lower in these groups. Many programs already target women who are 50 to 69, and women who smoke, and these programs seem to be having an impact on these women.

Women who are in the 50-69 age group need to have BSE use reinforced. This age group is more likely to be seeing nurses and doctors regarding their breast health, and with the professional reminders and guidance, women's self-efficacy to do BSE could be increased. If women are not yet performing BSE, they should be learning how to do it at this point. Women should become familiar with the texture of their breasts, and get into the habit of doing BSE regularly so that they will continue to do BSE after they are no longer eligible to receive mammography. The risk of developing breast cancer increases with age, so multiple methods of detection are ideal.

Further research needs to be done in regards to how well women are doing BSE. It might also be interesting to look at how women's ability to search for lumps improves with practice and whether professional training by nurses or doctors has an influence on this relationship. Other

areas for continuing research should look closely at what factors are specifically related to women's adoption of BSE so that they can be capitalized upon. The link of education predicting BSE use needs to be examined to learn more about how education does influence people to adopt healthy behaviours, including BSE.

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Appendix A:

Health Promotion Survey 1990



Health Promotion
Survey - 1990
Control Form

Enquête sur la promotion
de la santé - 1990
Formule de contrôle

HPS / EPS - 1

CONFIDENTIAL
when completed

CONFIDENTIEL
une fois rempli

1: 2:

3: 4: 5:

TELEPHONE NUMBER LABEL
ÉTIQUETTE NUMÉRO DE TÉLÉPHONE

Authority: Statistics Act, Revised Statutes
of Canada, 1985, Chapter S19.

Déclaration exigée en vertu de la Loi sur
la statistique, Lois révisées du Canada,
1985, chapitre S19.

RECORD OF CALLS - REGISTRE DES APPELS									
10	11 Date		12 Start Début		13 Finish Fin		14 Result Résultat	15 Interviewer's Name Nom de l'intervieweur	16 Comments Remarques
	Day Jour	Month Mois	Hour Heure	Min. Min.	Hour Heure	Min. Min.			
01									
02									
03									
04									
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17. Call Coverage by Time of Day and Day of Week Appels selon l'heure et le jour							18. Interviewer Number No de l'intervieweur	
Time Period Heure	Mon. Lun.	Tues. Mar.	Wed. Mer.	Thur. Jeu.	Fri. Ven.	Sat. Sam.	<input type="text"/>	
09:00 - 12:00							<div>Senior Interviewer Only Intervieweur principal seulement</div> <div>19. Final Status État final</div> <input type="text"/>	
12:01 - 18:00								
18:01 - 19:00								
19:01 - 21:00								



Health Promotion Survey

HPS-2

1: - 5:

Telephone Number

Sequence number

Collected under the authority of the
Statistics Act, Revised Statutes of
Canada, 1985, Chapter S19.

Interviewer Name: _____

SECTION A: PERCEPTIONS OF HEALTH

A1. First I would like to ask you a few questions about your health.

In general, compared to other people your age, would you say your health is...

- ☐ 1 Excellent?
☐ 2 Very good?
☐ 3 Good?
☐ 4 Fair?
☐ 5 Poor?

A2. Would you describe your life as...

- ☐ 1 Very stressful?
☐ 2 Somewhat stressful?
☐ 3 Not very stressful?
☐ 4 Not at all stressful?

A3. The next questions are about your current physical condition.

How tall are you without shoes?

1 or 2
feet inches centimetres

A4. How much do you weigh?

3 or 4
pounds kilograms

A5. How much would you like to weigh?

5 or 6
pounds kilograms

- ☐ 7 Same as A4
☐ 8 Don't know

A6. Are you limited in the kind or amount of activity you can do because of a long term illness, physical condition or health problem? By long term I mean a condition that has lasted or is expected to last more than 6 months.

- ☐ 1 Yes ☐ 2 No → Go to B1

A7. Are your activities limited...

- | | Yes | No
Don't
Know | Not
Applic-
able |
|---|--------------------------|--------------------------|--------------------------|
| a) At home? | 01 <input type="radio"/> | 02 <input type="radio"/> | 03 <input type="radio"/> |
| b) At work or school? | 04 <input type="radio"/> | 05 <input type="radio"/> | 06 <input type="radio"/> |
| c) In other activities (such
as television, music, sports or
hobbies) | 07 <input type="radio"/> | 08 <input type="radio"/> | 09 <input type="radio"/> |

A8. How well do you feel you are coping with this limitation? Would you say...

- ☐ 1 Very successful?
☐ 2 Somewhat successful?
☐ 3 Not very successful?
☐ 4 Not at all successful?
☐ 5 Don't know

A9. How important is each of the following in coping with your limitation? Is it "Very important", "Somewhat important" or "Not at all important"?

- | | Very
important | Somewhat
important | Not At All
important | Don't
Know
or Not
Applic-
able |
|---|--------------------------|--------------------------|--------------------------|--|
| a) Medical treatment you
received? | 01 <input type="radio"/> | 02 <input type="radio"/> | 03 <input type="radio"/> | 04 <input type="radio"/> |
| b) Your family or
friends? | 05 <input type="radio"/> | 06 <input type="radio"/> | 07 <input type="radio"/> | 08 <input type="radio"/> |
| c) Your general state
of health? | 09 <input type="radio"/> | 10 <input type="radio"/> | 11 <input type="radio"/> | 12 <input type="radio"/> |
| d) Your own
determination? | 13 <input type="radio"/> | 14 <input type="radio"/> | 15 <input type="radio"/> | 16 <input type="radio"/> |
| e) Prayer or spiritual
help? | 17 <input type="radio"/> | 18 <input type="radio"/> | 19 <input type="radio"/> | 20 <input type="radio"/> |

SECTION B: IMPROVING HEALTH

B1. Do you believe any of the following would help you to improve your health and well-being?

- | | Yes | No
Don't
Know | Not
Applic-
able |
|--|--------------------------|--------------------------|--------------------------|
| a) A more secure
income? | 01 <input type="radio"/> | 02 <input type="radio"/> | 03 <input type="radio"/> |
| b) Moving to another
neighbourhood or
community? | 04 <input type="radio"/> | 05 <input type="radio"/> | 06 <input type="radio"/> |
| c) A change in job or
business? | 07 <input type="radio"/> | 08 <input type="radio"/> | 09 <input type="radio"/> |
| d) Spending more time with
family or close friends? | 10 <input type="radio"/> | 11 <input type="radio"/> | 12 <input type="radio"/> |
| e) Exercising more or being
more physically active? | 13 <input type="radio"/> | 14 <input type="radio"/> | 15 <input type="radio"/> |
| f) Losing weight? | 16 <input type="radio"/> | 17 <input type="radio"/> | 18 <input type="radio"/> |
| g) Stop smoking? | 19 <input type="radio"/> | 20 <input type="radio"/> | 21 <input type="radio"/> |
| h) Cut down on drinking? | 22 <input type="radio"/> | 23 <input type="radio"/> | 24 <input type="radio"/> |
| i) Reduce drug use or
medications? | 25 <input type="radio"/> | 26 <input type="radio"/> | 27 <input type="radio"/> |
| j) Taking better care of
teeth? | 28 <input type="radio"/> | 29 <input type="radio"/> | 30 <input type="radio"/> |

SECTION C: BLOOD PRESSURE & CHOLESTEROL

C1. The next few questions are about heart health. In your opinion, what are the main causes of heart disease?

(MARK ALL THAT APPLY, DO NOT READ)

(IF RESPONDENT SAYS, "LIFESTYLE" OR "DIET", PROBE FOR SPECIFICS)

- ☐ 01 Don't know
- ☐ 02 Smoking
- ☐ 03 Lack of exercise
- ☐ 04 Eating fatty foods/Cholesterol
- ☐ 05 Being overweight
- ☐ 06 Poor diet
- ☐ 07 Eating too much salt (sodium)
- ☐ 08 Stress
- ☐ 09 Family medical history
- ☐ 10 High blood pressure
- ☐ 11 High blood cholesterol
- ☐ 12 Too much alcohol
- ☐ 13 Other (specify)

C2. When did you last have your blood pressure checked?

- ☐ 1 Within the last 6 months
- ☐ 2 7-12 months
- ☐ 3 13-24 months
- ☐ 4 More than 2 years
- ☐ 5 Don't know
- ☐ 6 Never → Go to C6

C3. Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure? (FOR WOMEN, ADD: "except when you were pregnant".)

- ☐ 1 Yes
 - ☐ 2 No
 - ☐ 3 Don't know
- } Go to C6

C4. Are you doing anything to control your blood pressure?

C5. What are you doing?
(MARK ALL THAT APPLY, DO NOT READ)

- ☐ 01 Medication/pills
- ☐ 02 Quit smoking
- ☐ 03 Exercise regularly
- ☐ 04 Losing weight or maintaining weight loss
- ☐ 05 Reduce salt intake
- ☐ 06 Other diet change
- ☐ 07 Relaxation
- ☐ 08 Reduce alcohol use
- ☐ 09 Other (specify)

☐ 10 Don't know

C6. Were you ever told by a doctor, nurse or other health professional that your blood cholesterol was high? (THIS WOULD REQUIRE A BLOOD SAMPLE)

- ☐ 1 Yes
- ☐ 2 No
- ☐ 3 Don't know/ Can't remember } Go to D1

C7. Are you doing anything to control your cholesterol?

- ☐ 4 Yes
- ☐ 5 No → Go to D1

C8. What are you doing?
(MARK ALL THAT APPLY, DO NOT READ)

- ☐ 1 Losing weight or maintaining weight loss
- ☐ 2 Reduce cholesterol in diet
- ☐ 3 Eat less fatty foods
- ☐ 4 Other change in diet
- ☐ 5 Exercise regularly
- ☐ 6 Control stress and fatigue
- ☐ 7 Take prescribed medication
- ☐ 8 Other (specify)

SECTION D: EXERCISE

D1. The next few questions are about exercise. By exercise we mean vigorous activities such as aerobics, jogging, racquet sports, team sports, dance classes, or brisk walking.

How many times per week, on average, do you exercise?
(DO NOT READ)

- ☐ 1 Daily
- ☐ 2 5-6 times a week
- ☐ 3 3-4 times a week
- ☐ 4 1-2 times a week
- ☐ 5 Less than once a week

☐ 6 Never } Go to D4

<p>D2. When you do this exercise, how much time are you actually active? Would it usually be....</p> <p>¹○ Less than 15 minutes?</p> <p>²○ Between 15 and 30 minutes?</p> <p>³○ More than 30 minutes?</p>	<p>E5. Have these restrictions affected how much you smoke each day?</p> <p>¹○ Yes → How so? ²○ Less each day</p> <p>³○ More each day</p> <p>⁴○ Tried to quit</p> <p>⁵○ No, about same</p> <p>⁶○ Don't know</p>	
<p>D3. Do you feel that you get as much exercise as you need or less than you need?</p> <p>⁴○ As much as needed</p> <p>⁵○ Less than needed</p> <p>⁶○ Don't know</p>	<p>E6. How many of the people living in your household smoke cigarettes daily? (IF SMOKER, ADD: "Including yourself")</p> <p> people (If none, enter 00)</p>	
<p>D4. I am going to read four sentences describing daily routines or activities. Tell me which one best describes your usual situation. (MARK ONLY ONE)</p> <p>¹○ 1. You sit during the day and do not walk about very much.</p> <p>²○ 2. You stand or walk about quite a lot during the day, but do not have to carry or lift things very often.</p> <p>³○ 3. You lift or carry light loads, or you have to climb stairs or hills often.</p> <p>⁴○ 4. You do heavy work or carry very heavy loads.</p>	<p>E7. Do you ever feel unpleasant effects from the cigarette smoke of others?</p> <p>⁷○ Yes ⁸○ No</p>	
<p>SECTION E: SMOKING</p>		
<p>E1. The next few questions are about smoking.</p> <p>Have you ever smoked cigarettes?</p> <p>¹○ Yes ²○ No → Go to E6</p>	<p style="text-align: center;">SECTION F: ALCOHOL</p> <p>F1. Now I would like to ask some questions about alcohol consumption.</p> <p>In the next questions when we use the word drink it means:</p> <ul style="list-style-type: none"> • One bottle of beer or glass of draft • One small glass of wine • One shot or mixed drink with hard liquor <p>(Have you ever taken a drink? (beer, wine, liquor or other alcoholic beverage))</p> <p>¹○ Yes ²○ No → Go to G1</p>	
<p>E2. At the present time do you smoke cigarettes?</p> <p>³○ Yes ⁴○ No → Go to E6</p>	<p>F2. In the past 12 months, have you taken a drink? (beer, wine, liquor or other alcoholic beverage)</p> <p>³○ Yes ⁴○ No → Go to G1</p>	
<p>E3. Do you usually smoke cigarettes every day?</p> <p>⁵○ Yes → How many per day? cigarettes</p> <p>⁶○ No</p>	<p>F3. In the past 12 months, how often on average did you drink alcohol? Was it...</p> <p>¹○ Every day?</p> <p>²○ 4-5 times a week?</p> <p>³○ 2-3 times a week?</p> <p>⁴○ Once a week?</p> <p>⁵○ Once or twice a month?</p> <p>⁶○ Less often than once a month?</p>	
<p>E4. In your day to day activities, do you find restrictions placed on where or when you can smoke?</p> <p>⁷○ Yes ⁸○ No → Go to E6</p>		

F4. Thinking back over the last 7 days, starting with yesterday, how many drinks did you have on each day?

Did not have any drinks in the past 7 days... 1 ☐ → Go to F5

How many drinks did you have on...

F5. I'm going to read you a few statements about the reasons why people drink. For each, tell me if it is a reason you drink. Do you drink...

- | | Yes | No | Don't Know |
|---|--------------------------|--------------------------|--------------------------|
| a) To be sociable or to add to the enjoyment of meals? | 01 <input type="radio"/> | 02 <input type="radio"/> | 03 <input type="radio"/> |
| b) To feel good or get in a party mood? | 04 <input type="radio"/> | 05 <input type="radio"/> | 06 <input type="radio"/> |
| c) To overcome stress or when sad, lonely or depressed? | 07 <input type="radio"/> | 08 <input type="radio"/> | 09 <input type="radio"/> |

SECTION G: DRUGS

G1. Now I would like to ask you about your use of medicines, pills and other drugs.

In the past 12 months have you used...

- | | Yes | No |
|---|--------------------------|--------------------------|
| a) Tranquillizers such as valium? | 01 <input type="radio"/> | 02 <input type="radio"/> |
| b) Diet pills or stimulants? | 03 <input type="radio"/> | 04 <input type="radio"/> |
| c) Anti-depressants? | 05 <input type="radio"/> | 06 <input type="radio"/> |
| d) Codeine, demerol or morphine? | 07 <input type="radio"/> | 08 <input type="radio"/> |
| e) Sleeping pills? | 09 <input type="radio"/> | 10 <input type="radio"/> |

G2. Have you ever used...

Have you used it in the past 12 months?

- | | Yes | No |
|--------------------------------|---|----|
| a) Marijuana or hashish? | 01 <input type="radio"/> Yes → 02 <input type="radio"/> 03 <input type="radio"/>
04 <input type="radio"/> No | |
| b) Cocaine or crack? | 05 <input type="radio"/> Yes → 06 <input type="radio"/> 07 <input type="radio"/>
08 <input type="radio"/> No | |
| c) LSD (acid)? | 09 <input type="radio"/> Yes → 10 <input type="radio"/> 11 <input type="radio"/>
12 <input type="radio"/> No | |
| d) Amphetamines (speed)? | 13 <input type="radio"/> Yes → 14 <input type="radio"/> 15 <input type="radio"/>
16 <input type="radio"/> No | |
| e) Heroin? | 17 <input type="radio"/> Yes → 18 <input type="radio"/> 19 <input type="radio"/>
20 <input type="radio"/> No | |

SECTION H: ROAD SAFETY PRACTICES

H1. The next questions are about road safety.

How often do you use seatbelts when you ride in a car? (READ RESPONSES)

- 1 ☐ Always?
2 ☐ Most of the time?
3 ☐ Sometimes?
4 ☐ Rarely or never?

H2. Have you driven an all terrain vehicle (ATV) or snowmobile in the last 12 months?

- 1 ☐ Yes → How often did you wear a helmet?
2 ☐ Always
3 ☐ Most of the time
4 ☐ Sometimes
5 ☐ Rarely or never

H3. INTERVIEWER CHECK ITEM:

- If F1 or F2 is "No" 7 ☐ → Go to I1
- Otherwise 8 ☐ → Go to H4

H4. In the past 30 days, how many times have you driven a motor vehicle within two hours of drinking any amount of alcohol?

(If none, enter 00)

SECTION I: NUTRITION

11. The next questions are about nutrition.

In the last 7 days, on how many days did you have the following as part of your breakfast?

a) Just coffee, tea or nothing at all ☐

(IF ANSWER IS 7 GO TO 12)

b) Eggs, bacon, ham or other meat ☐

c) Bread, toast, pastries, pancakes or cereals ☐

d) Fruit or juice ☐

e) Cheese, milk or other dairy products (other than in your coffee or tea) ☐

12. In your opinion, what are the two best ways for people to lose weight?

(DO NOT READ — PROBE FOR SECOND CHOICE)
(IF ANSWER IS "TO DIET", ASK TO EXPLAIN)

⁰¹ ☐ Increase physical activity/exercise

⁰² ☐ Eat less sweets and sugar

⁰³ ☐ Eat fewer calories

⁰⁴ ☐ Don't eat between meals (snacks)

⁰⁵ ☐ Skip meals

⁰⁶ ☐ Eat less food (generally)

⁰⁷ ☐ Eat more fruits and vegetables

⁰⁸ ☐ Eat foods low in fat

⁰⁹ ☐ Eat a balanced or nutritious diet

¹⁰ ☐ Other (specify)

13. Are you now trying to lose weight?

¹ ☐ Yes

² ☐ No

14. Do you consider yourself...

³ ☐ Overweight?

⁴ ☐ Underweight?

15. Would you say you are...

⁶ ☐ Very overweight?

⁷ ☐ Somewhat overweight?

⁸ ☐ Only a little overweight?

SECTION J: SOCIAL RELATIONSHIPS

J1. The next few questions are about relationships and helping one another.

In the past 30 days, have you helped care for a relative or friend who was suffering from a physical or mental health problem?

¹ ☐ Yes

² ☐ No

³ ☐ Don't know/Not sure

J2. In the past 30 days, have you experienced a physical or mental health problem for which you received some care from a relative or friend?

⁴ ☐ Yes

⁵ ☐ No

⁶ ☐ Don't know/Not sure

SECTION K: WORKPLACE

K1. The next few questions are about your employment status.

Which of the following best describes your main activity during the last 12 months? Were you mainly...

¹ ☐ Working at a job or business? → Go to K3

² ☐ Looking for work? → Go to K2

³ ☐ A student?

⁴ ☐ Retired?

⁵ ☐ Keeping house?

⁶ ☐ Other

→ Go to L1

K2. Did you have a job or business at any time during the past 12 months?

⁷ ☐ Yes

<p>L3. Have you ever had a mammogram, that is, a breast X-ray?</p> <p>1 <input type="radio"/> Yes → When was the last time?</p> <p>6 <input type="radio"/> No 2 <input type="radio"/> Less than 12 months ago</p> <p>7 <input type="radio"/> Don't know 3 <input type="radio"/> 1 to 2 years ago</p> <p> 4 <input type="radio"/> More than 2 years ago</p> <p> 5 <input type="radio"/> Don't know</p>	<p>L11. I would now like your opinion on some ways for people in general to prevent getting a sexually transmitted disease.</p> <p>After I read each one, tell me if you think it is "Very effective", "Somewhat effective", or "Not at all effective" for <u>preventing</u> sexually transmitted diseases:</p> <table style="width: 100%; text-align: center; font-size: small;"> <tr> <td></td> <td>Very effective</td> <td>Somewhat effective</td> <td>Not at all effective</td> <td>Don't know how effective</td> <td>Don't know method</td> </tr> </table> <p>a) A condom? ... 01 <input type="radio"/> 02 <input type="radio"/> 03 <input type="radio"/> 04 <input type="radio"/> 05 <input type="radio"/></p> <p>b) A diaphragm? ... 06 <input type="radio"/> 07 <input type="radio"/> 08 <input type="radio"/> 09 <input type="radio"/> 10 <input type="radio"/></p> <p>c) Spermicidal Jelly or foam? ... 11 <input type="radio"/> 12 <input type="radio"/> 13 <input type="radio"/> 14 <input type="radio"/> 15 <input type="radio"/></p> <p>d) Ask if partner has a sexually transmitted disease? 16 <input type="radio"/> 17 <input type="radio"/> 18 <input type="radio"/> 19 <input type="radio"/> 20 <input type="radio"/></p> <p>e) Sex only with regular partner? 21 <input type="radio"/> 22 <input type="radio"/> 23 <input type="radio"/> 24 <input type="radio"/> 25 <input type="radio"/></p> <p>f) No sex at all? 26 <input type="radio"/> 27 <input type="radio"/> 28 <input type="radio"/> 29 <input type="radio"/> 30 <input type="radio"/></p>		Very effective	Somewhat effective	Not at all effective	Don't know how effective	Don't know method
	Very effective	Somewhat effective	Not at all effective	Don't know how effective	Don't know method		
<p>L4. Have you ever had a PAP smear?</p> <p>1 <input type="radio"/> Yes → When was the last time?</p> <p>6 <input type="radio"/> No 2 <input type="radio"/> Less than 12 months ago</p> <p>7 <input type="radio"/> Don't know 3 <input type="radio"/> 1 to 3 years ago</p> <p> 4 <input type="radio"/> More than 3 years ago</p> <p> 5 <input type="radio"/> Don't know</p>	<p>L12. What do you think your chances are of getting a sexually transmitted disease? Would you say they are...</p> <p>1 <input type="radio"/> High?</p> <p>2 <input type="radio"/> Medium?</p> <p>3 <input type="radio"/> Low?</p> <p>4 <input type="radio"/> None?</p> <p>-----</p> <p>5 <input type="radio"/> Don't know</p> <p>6 <input type="radio"/> Already have an STD</p>						
<p>L5. Have you ever given birth?</p> <p>1 <input type="radio"/> Yes 2 <input type="radio"/> No → Go to L8</p>	<p>L13. Due to what you know about sexually transmitted diseases, have you changed your sexual behaviour in the past 12 months?</p> <p>7 <input type="radio"/> Yes</p> <p>8 <input type="radio"/> No → Go to N1</p>						
<p>L6. In what month and year was your last child born?</p> <p>3 <input type="text"/> <input type="text"/> Month 4 19 <input type="text"/> <input type="text"/> Year</p>	<p>L14. Have you...</p> <table style="width: 100%; text-align: center; font-size: small;"> <tr> <td></td> <td>Yes</td> <td>No</td> </tr> </table> <p>a) Had sexual intercourse with only one partner? 1 <input type="radio"/> 2 <input type="radio"/></p> <p>b) Used condoms for protection? 3 <input type="radio"/> 4 <input type="radio"/></p> <p>c) Been more careful in selecting sexual partners? 5 <input type="radio"/> 6 <input type="radio"/></p> <p>d) Anything else? (specify) 7 <input type="radio"/> 8 <input type="radio"/></p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>		Yes	No			
	Yes	No					
<p>L7. Did you breast-feed your last child?</p> <p>1 <input type="radio"/> Yes → How long did you breast-feed your last child?</p> <p>7 <input type="radio"/> No 2 <input type="radio"/> Less than 1 month</p> <p>8 <input type="radio"/> Tried/not successful 3 <input type="radio"/> 1 - 2 months</p> <p> 4 <input type="radio"/> 3 - 4 months</p> <p> 5 <input type="radio"/> 5 - 6 months</p> <p> 6 <input type="radio"/> 6 or more months</p>	<p>L9. In the past 12 months, have you had sexual intercourse?</p> <p>1 <input type="radio"/> Yes</p> <p>2 <input type="radio"/> No 3 <input type="radio"/> Refused to answer</p>						
<p>L8. I would like to ask you a few personal questions about sexual behaviour because of its importance to personal health and social problems. Once again, please be assured that anything you tell me will remain confidential.</p> <p>Now, we would like to know your age when you first had sexual intercourse. This is important information because it has some bearing on health in later years. Do you remember how old you were?</p> <p><input type="text"/> <input type="text"/> Age</p> <p>97 <input type="radio"/> Never } Go to L11</p> <p>98 <input type="radio"/> Refused to answer }</p>	<p>L10. In the past 12 months, with how many partners did you have sexual intercourse?</p> <p><input type="text"/> <input type="text"/> partners</p>						

SECTION M: MEN'S HEALTH

1. I would like to ask you a few personal questions about sexual behaviour because of its importance to personal health and social problems. Once again, please be assured that anything you tell me will remain confidential.

Now, we would like to know your age when you first had sexual intercourse. Do you remember how old you were?

Age

⁹⁷ ☐ Never

⁹⁸ ☐ Refused to answer

Go to M4

12. In the past 12 months, have you had sexual intercourse?

¹ ☐ Yes

² ☐ No

³ ☐ Refused to answer

Go to M4

13. In the past 12 months, with how many partners did you have sexual intercourse?

partners

⁹⁸ ☐ Refused to answer

14. I would now like your opinion on some ways for people in general to prevent getting a sexually transmitted disease.

After I read each one, tell me if you think it is "Very effective", "Somewhat effective", or "Not at all effective" for preventing sexually transmitted diseases:

- | | Very effective | Somewhat effective | Not at all effective | Don't know how effective | Don't know method |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| a) A condom? ... | ⁰¹ <input type="radio"/> | ⁰² <input type="radio"/> | ⁰³ <input type="radio"/> | ⁰⁴ <input type="radio"/> | ⁰⁵ <input type="radio"/> |
| b) A diaphragm? .. | ⁰⁶ <input type="radio"/> | ⁰⁷ <input type="radio"/> | ⁰⁸ <input type="radio"/> | ⁰⁹ <input type="radio"/> | ¹⁰ <input type="radio"/> |
| c) Spermicidal jelly or foam? . | ¹¹ <input type="radio"/> | ¹² <input type="radio"/> | ¹³ <input type="radio"/> | ¹⁴ <input type="radio"/> | ¹⁵ <input type="radio"/> |
| d) Ask if partner has a sexually transmitted disease? | ¹⁶ <input type="radio"/> | ¹⁷ <input type="radio"/> | ¹⁸ <input type="radio"/> | ¹⁹ <input type="radio"/> | ²⁰ <input type="radio"/> |
| e) Sex only with regular partner? | ²¹ <input type="radio"/> | ²² <input type="radio"/> | ²³ <input type="radio"/> | ²⁴ <input type="radio"/> | ²⁵ <input type="radio"/> |
| f) No sex at all? | ²⁶ <input type="radio"/> | ²⁷ <input type="radio"/> | ²⁸ <input type="radio"/> | ²⁹ <input type="radio"/> | ³⁰ <input type="radio"/> |

- M5. What do you think your chances are of getting a sexually transmitted disease? Would you say they are...

¹ ☐ High?

² ☐ Medium?

³ ☐ Low?

⁴ ☐ None?

⁵ ☐ Don't know

⁶ ☐ Already have an STD

- M6. Due to what you know about sexually transmitted diseases, have you changed your sexual behaviour in the past 12 months?

⁷ ☐ Yes

⁸ ☐ No → Go to N1

- M7. Have you...

Yes No

a) Had sexual intercourse with only one partner? ¹ ☐ ² ☐

b) Used condoms for protection? ³ ☐ ⁴ ☐

c) Been more careful in selecting sexual partners? ⁵ ☐ ⁶ ☐

d) Anything else? (specify) ⁷ ☐ ⁸ ☐

SECTION N: DENTAL HEALTH

- N1. Next I would like to ask you some questions about your teeth.

Do you have one or more of your natural teeth?

¹ ☐ Yes

² ☐ No → Go to N5

- N2. Have you seen a dentist in the past 12 months?

³ ☐ Yes

⁴ ☐ No

⁵ ☐ Don't know

Go to N4

- N3. During this time, did you see a dentist for...

Yes No

a) A dental checkup or cleaning? ⁰¹ ☐ ⁰² ☐

b) A filling or extraction? (non-emergency) ⁰³ ☐ ⁰⁴ ☐

c) Any periodontal treatment? (gum treatment) ⁰⁵ ☐ ⁰⁶ ☐

d) Orthodontic treatment? (braces) ⁰⁷ ☐ ⁰⁸ ☐

e) Crown or bridge work? ⁰⁹ ☐ ¹⁰ ☐

f) A dental emergency? ¹¹ ☐ ¹² ☐

- N4. How often do you usually brush your teeth? (DO NOT READ)

¹ ☐ Twice or more a day/after every meal

² ☐ Once a day

³ ☐ A few times a week

⁴ ☐ Once a week

⁵ ☐ A few times a month

⁶ ☐ Once a month

⁷ ☐ Rarely/Never

⁸ ☐ Don't know

N5. Are you covered by dental insurance?

- 1 ☐ Yes
- 2 ☐ No
- 3 ☐ Don't know

SECTION O: HOME AND ENVIRONMENTAL ISSUES

O1. The next questions are about home and environmental issues.

Do you, or others in your household...

- | | Yes | No
Don't
know | Not
applic-
able |
|---|--------------------------|--------------------------|--------------------------|
| a) Own a smoke alarm that works? | 01 <input type="radio"/> | 02 <input type="radio"/> | 03 <input type="radio"/> |
| b) Own a first-aid kit? | 04 <input type="radio"/> | 05 <input type="radio"/> | 06 <input type="radio"/> |
| c) Have a household member trained in first aid? | 07 <input type="radio"/> | 08 <input type="radio"/> | 09 <input type="radio"/> |
| d) Own a fire extinguisher that works? | 10 <input type="radio"/> | 11 <input type="radio"/> | 12 <input type="radio"/> |
| e) Read nutrition labels on packages to make food choices? | 13 <input type="radio"/> | 14 <input type="radio"/> | 15 <input type="radio"/> |
| f) Check that the water heater thermostat does not exceed 50°C or 120°F? (scalding) | 16 <input type="radio"/> | 17 <input type="radio"/> | 18 <input type="radio"/> |
| g) Recycle papers, bottles, cans, etc.? | 19 <input type="radio"/> | 20 <input type="radio"/> | 21 <input type="radio"/> |
| h) Compost fruit and vegetable waste? | 22 <input type="radio"/> | 23 <input type="radio"/> | 24 <input type="radio"/> |
| i) Buy products made of recycled materials? | 25 <input type="radio"/> | 26 <input type="radio"/> | 27 <input type="radio"/> |

O2. During the past 12 months, how much do you think that environmental pollution has affected your health? Would you say...

- 1 ☐ Very much?
- 2 ☐ A fair amount?
- 3 ☐ Not very much?
- 4 ☐ Not at all?
- 5 ☐ Don't Know

SECTION P: GOVERNMENT ACTION ON HEALTH PROMOTION ISSUES

P1. I will now read a list of health topics. For each I'd like your opinion about how important you feel it is for the government to deal with each topic.

Tell me on a scale of 1 to 10; with 1 being "not at all important" and 10 being "extremely important", how important do you feel it is for the government to deal with...

Not at all important					Extremely important				
1	2	3	4	5	6	7	8	9	10

- | | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
|---|----------------------|----|----|----|----|----|----|----|----|----|-----------------------|
| a) Drug use? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| b) Smoking? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| c) Alcohol problems? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| d) Child health? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| e) Eating habits? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| f) Mental health? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| g) Accident prevention on the road? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| h) Accident prevention at work? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| i) Exercise or physical activity? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| j) Environmental pollution? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| k) AIDS? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| l) Other sexually transmitted diseases? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| m) Dental health? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |
| n) Heart disease? | <input type="text"/> | | | | | | | | | | <input type="radio"/> |

SECTION Q: HEALTH INTENTIONS — PAST AND FUTURE

Q1. Did you do something to improve your health in the past 12 months?

☐ Yes

☐ No → Go to Q4

Q2. What is the single most important change you have made in the past 12 months to improve your health? (DO NOT READ, MARK ONLY ONE)

- ☐ Increased exercise, sports or physical activity
- ☐ Lost weight
- ☐ Changed diet or eating habits
- ☐ Quit smoking/reduced amount smoked
- ☐ Reduced drug/medication use
- ☐ Drank less alcohol
- ☐ Managed or reduced blood pressure
- ☐ Managed or reduced cholesterol
- ☐ Managed or reduced stress
- ☐ Changed physical environment
- ☐ Received medical treatment
- ☐ Changed sexual behaviour or reduced risk of STD's
- ☐ Improved dental hygiene
- ☐ Other (specify)

Q4. Considering the health topics we've discussed in this questionnaire, is there anything you intend to change to improve your health in the next year? (DO NOT READ, MARK ALL THAT APPLY) (PROBE: Anything else?)

- ☐ Nothing
- ☐ Increase exercise, sports or physical activity
- ☐ Lose weight
- ☐ Change diet or eating habits
- ☐ Quit smoking/reduce amount smoked
- ☐ Reduce drug/medication use
- ☐ Drink less alcohol
- ☐ Manage or reduce blood pressure
- ☐ Manage or reduce cholesterol
- ☐ Learn to manage or reduce stress
- ☐ Change physical environment
- ☐ Receive medical treatment
- ☐ Change sexual behavior or reduce risk of STD's
- ☐ Improve dental hygiene
- ☐ Other (specify)

Q3. Did any of the following help you to make this change?

- | | Yes | No
Don't
know | Not
Applic-
able |
|---|-----------------------|-----------------------|------------------------|
| a) Support from family and friends | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b) Increased knowledge of health risks | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c) Changes in legislation or by-laws | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d) New policy or program at school or work | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e) Change in life situation (eg. marital status, employment, moving home, etc.) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| f) Advice or support of health professional(s) ... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g) Self-help or mutual aid group (eg. AA, Weight Watchers) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h) Other people setting an example | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i) Changes in social values | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| j) Commercial products or services | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

SECTION R: CLASSIFICATION QUESTIONS

R1. Now a few general questions.

What is your postal code?

--	--	--	--	--	--	--	--	--	--

☐ Don't know

R2. What is the highest grade or level of education you have ever attended or ever completed? (MARK ONLY ONE)

- ☐ No schooling
 - ☐ Some
 - ☐ Completed
 - ☐ Some
 - ☐ Completed
 - ☐ Some
 - ☐ Completed
 - ☐ Some
 - ☐ Completed
- Elementary
- Secondary
- Community college, technical college, CEGEP or nurse's training.
- University (eg. B.A., M.A., Ph.D.) or teacher's college

<p>R3. What is the month and year of your birth?</p> <p>1 <input type="text"/> <input type="text"/> Month 2 19 <input type="text"/> <input type="text"/> Year</p>	<p>R7. Are there any children under 15 years old living in your household?</p> <p>1 <input type="radio"/> Yes → How many are ...</p> <p style="padding-left: 100px;">5 years old or less? 2 <input type="text"/></p> <p style="padding-left: 100px;">6 to 11 years old? 3 <input type="text"/></p> <p style="padding-left: 100px;">12 to 14 years old? 4 <input type="text"/></p> <p>5 <input type="radio"/> No</p>
<p>R4. What language do you speak most often at home?</p> <p>3 <input type="radio"/> English</p> <p>4 <input type="radio"/> French</p> <p>5 <input type="radio"/> Italian</p> <p>6 <input type="radio"/> Chinese</p> <p>7 <input type="radio"/> German</p> <p>8 <input type="radio"/> Other (specify) _____</p>	<p>R8. What is your best estimate of the total income of all household members from all sources in 1989 before taxes and deductions? Was the total household income ...</p> <div style="margin-left: 40px;"> <p>Less than \$20,000 01 <input type="radio"/> →</p> <div style="display: inline-block; vertical-align: middle;"> <p>Less than \$10,000? 05 <input type="radio"/> →</p> <p style="margin-left: 20px;">Less than \$5,000? 09 <input type="radio"/></p> <p style="margin-left: 20px;">\$5,000 or more? 10 <input type="radio"/></p> </div> <div style="display: inline-block; vertical-align: middle;"> <p>\$10,000 or more? 06 <input type="radio"/> →</p> <p style="margin-left: 20px;">Less than \$15,000? 11 <input type="radio"/></p> <p style="margin-left: 20px;">\$15,000 or more? 12 <input type="radio"/></p> </div> </div> <div style="margin-left: 40px; margin-top: 20px;"> <p>\$20,000 or more 02 <input type="radio"/> →</p> <div style="display: inline-block; vertical-align: middle;"> <p>Less than \$40,000? 07 <input type="radio"/> →</p> <p style="margin-left: 20px;">Less than \$30,000? 13 <input type="radio"/></p> <p style="margin-left: 20px;">\$30,000 or more? 14 <input type="radio"/></p> </div> <div style="display: inline-block; vertical-align: middle;"> <p>\$40,000 or more? 08 <input type="radio"/> →</p> <p style="margin-left: 20px;">Less than \$60,000? 15 <input type="radio"/></p> <p style="margin-left: 20px;">\$60,000 to \$79,999? 16 <input type="radio"/></p> <p style="margin-left: 20px;">\$80,000 or more? 17 <input type="radio"/></p> </div> </div> <p>03 <input type="radio"/> No income</p> <p>04 <input type="radio"/> Don't know</p>
<p>R5. Canadians belong to many ethnic or cultural groups such as Inuit, Irish, Scottish, French or Chinese. To which ethnic or cultural groups do YOU belong? (ACCEPT MULTIPLE RESPONSES, DO NOT PROBE)</p> <p>01 <input type="radio"/> English</p> <p>02 <input type="radio"/> French</p> <p>03 <input type="radio"/> Scottish</p> <p>04 <input type="radio"/> Irish</p> <p>05 <input type="radio"/> German</p> <p>06 <input type="radio"/> Ukrainian</p> <p>07 <input type="radio"/> Italian</p> <p>08 <input type="radio"/> Dutch</p> <p>09 <input type="radio"/> Canadian</p> <p>10 <input type="radio"/> Other (specify) _____</p>	
<p>R6. What is your current marital status? Are you ...</p> <p>1 <input type="radio"/> Single (Never married)?</p> <p>2 <input type="radio"/> Married (and not separated), or living common-law?</p> <p>3 <input type="radio"/> Separated?</p> <p>4 <input type="radio"/> Divorced?</p> <p>5 <input type="radio"/> Widowed?</p>	

SECTION S: DATA SHARING AGREEMENT

S1. Statistics Canada is conducting this survey jointly with Health and Welfare Canada and the provincial ministry responsible for health promotion in Alberta. The information collected will be kept confidential and used only for statistical purposes.

DO YOU AGREE TO SHARE YOUR ANSWERS WITH THESE MINISTRIES?

YES 1 ☐

NO 2 ☐

THANK YOU
VERY MUCH FOR YOUR ASSISTANCE!